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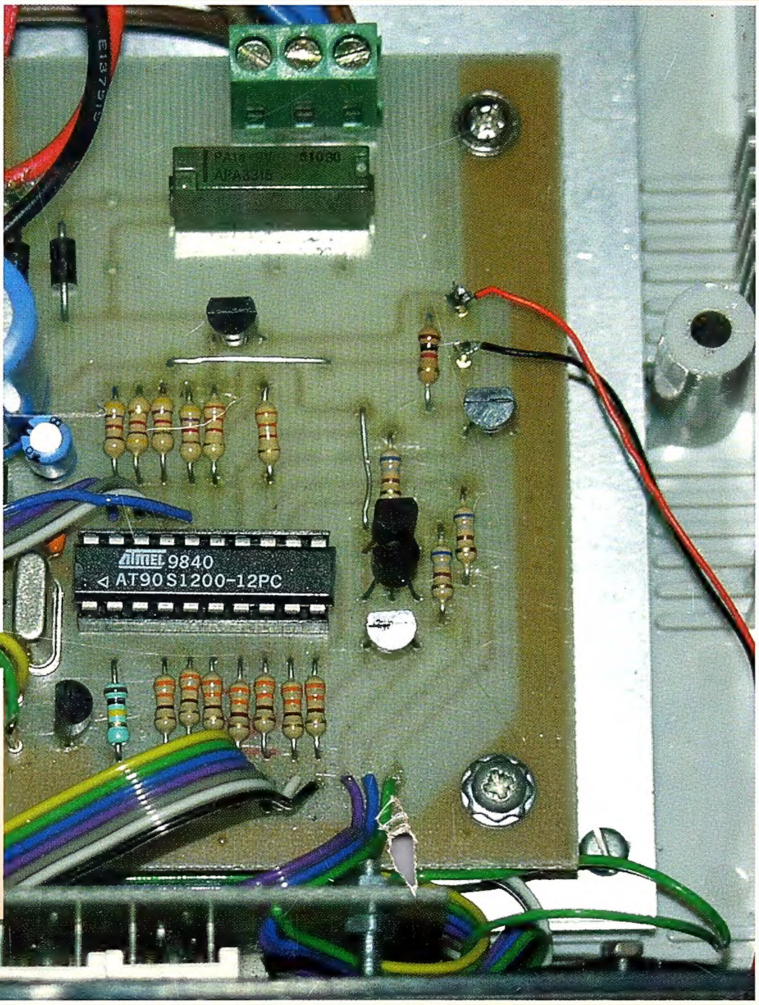
ICOM's IC-756 PROII

— full review!



Invited to see a Shuttle mission! — story with great pictures

Something very timely to build! Look inside to find out what!

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December 2001 Number 6
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Hey, haven't we seen this radio before? Well, yes and no! This is a major rework of the Icom IC-756PRO, naturally enough called the IC-756PROII. Welcome Neil Duncan back as it gets a thrashing…

Cover review: ICOM IC-756PROII 10

This is one *mighty* radio! Neil Duncan, VK3ND, is rarely lost for words, but he came close with this one, mighty close. You don't just turn it on, you boot it up! HF and 6m will never be the same…

Review: Amateur Radio Companion 14

A quick look at a *lot* of data, all jammed onto one CD-ROM…

Build it: the Aussie Mini-Pole 16

Here's another Steve Ireland antenna special. This time, he discusses how to make a short wire antenna electrically longer.

Technically Speaking №6 26

Here's Ron Bertrand on antenna theory, explaining the basic principles under which they all work. This month, Antennas #2.

Vintage Radio: a primer 31

There are lots of old valve radios out there — but which ones are the true collectables? What are the traps and pitfalls of buying old radios? What should you watch out for? Roger Johnson has all the answers, and shares some of the secrets this month!

You wouldn't mind this sight in your camera viewfinder! But the only way you can get this close to a Shuttle is by a special invitation from NASA — a very special invitation. And its lucky recipient agreed to tell us all about it… the rotten skite!

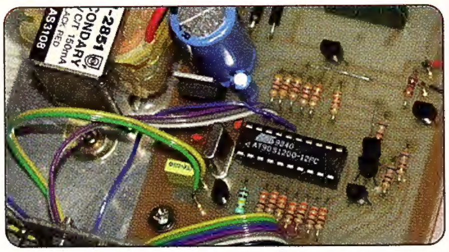
Invitation to a Shuttle Launch… 38

Tony Hutchison, VK5ZAI, flew to the USA to watch an entire Shuttle mission. Aussie astronaut Dr Andy Thomas performed a spacewalk during that mission. Tony saw the whole shebang…

Want to catch up with these guys? No, no, we mean on your radio! We welcome Allen Davis to the team of regulars — and if the action's on your scanner, count on Allen to find it! Happy now, RalfRF?

Build a PCB lamp timer 42

Here's a project for people who like to build projects! Rob Payne, VK5PR, presents a low-cost timer circuit which is straightforward to build and will make your PCB work an absolute breeze!



The Grid Square League 59

The VHF and UHF devotees compete with each other to see who can "work" the greatest number of areas. Here's the first listing of who's done what. Can you top these numbers?

5 Editorial - *What* Editorial? We're right out of space!
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36 Modifications - More and better than ever before…
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– Len Shaw, Editor, Radio & Communications Magazine, TS-2000 Review, May 2001

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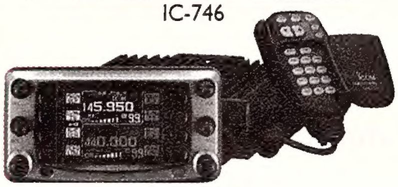

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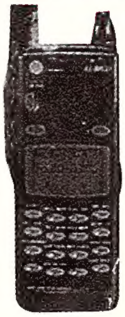

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ISSN 1445-0607

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Published by

Radiomag Pty Ltd ACN 095 382 488
PO Box 123, Eagle Heights, QLD 4271

Display Advertising

David Jones, VK4OF
E-mail: adverts@radiomag.com
Telephone: 0412 188 100
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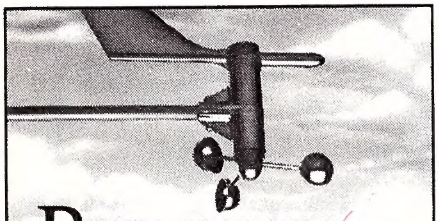

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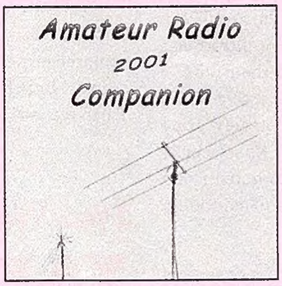

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Each transceiver is supplied with a hand-mic, DC power lead and a comprehensive instruction manual. Call us for a copy of Yaesu's 6 page colour brochure to learn more about this incredible value 'Earth Station' transceiver.

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VX-5R pictured showing
large frequency digits

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Another really useful feature is the large backlit dot-matrix LCD screen that can be configured to suit your operating needs. You can choose large frequency digits, dual line displays (VFO 'A' and 'B' frequencies, VFO 'A' frequency and battery voltage and even VFO 'A' frequency as well as other data such as recent Tx/Rx times or transceiver internal temperature), or even 8-digit alpha-numeric memory labels. All this in a diecast aluminium enclosure just 58W x 87H x 28D mm (w/o knobs or antenna)!

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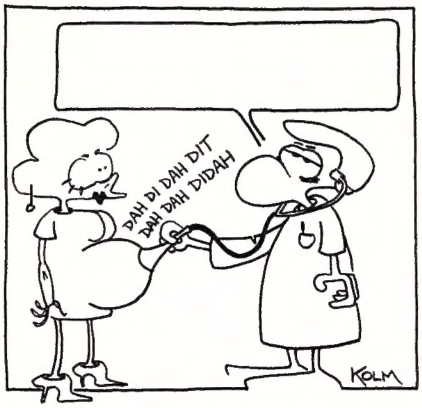
Captions Revisited

Our two finalists for last month's cartoon, below, are:



David Dunstan, of whereabouts unknown, with "Confined spaces drive me dah dah dah ditty"; and

Mark Egan, of Lawson NSW, with "I hate to say this Mrs Morse, but I think your baby is going to be a Dit off the old Dot, just like his Dad".

Also from Mark: "Frankly my dear, I do think this child belongs to Mr Morse and NOT Mr Bell!"

They are our joint winners this month, in a tie between David's one caption and Mark's second caption. Both receive a signed copy of the cartoon, with their captions written in by the artist.

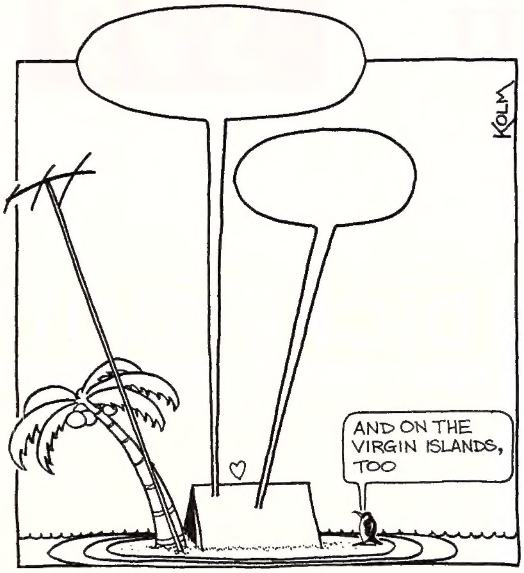
Now consider the new cartoon, below. It is another cartoon from years past, but without the caption. The challenge is, can you dream up a caption that is funnier than the original?

Points will be awarded for insanity, humour and creativity, not necessarily in that order. The judge is still me and correspondence will cheerfully be entered into, but as ever don't expect it to make any sense. Send your entries to:

News Desk, c/- PO Box 270, East Melbourne, Vic 3002
or — even better — by E-mail to **newsdesk@radiomag.com**.

Your prize will be a signed copy of the cartoon, with your caption written in by the artist. They are A4-sized and easy to frame. Don't forget to include your name and address!

The closing date for this competition is the last Friday of the month. Any entries received after this date will, as always, be pulped and fed to the monster in the basement. (Bet you didn't realise that's where the Editor lives...)


KOLM
AND ON THE VIRGIN ISLANDS, TOO

This Month's Clever Trick

ALBUQUERQUE (Reuters) — An Albuquerque policeman and his pilot face disciplinary measures after using a police helicopter this week to swoop in for a midnight snack of doughnuts, officials said on Friday.

The officer and the civilian pilot were on night patrol over the city in a Kiowa OH-58 helicopter when they landed in a vacant lot next to a Krispy Kreme doughnut store around 1 am on Thursday morning.

"The contracted pilot and a police officer landed the copter early in the morning, ran in and grabbed a dozen, came back out and took off," Albuquerque Police Department spokesman Brian McCutcheon said. "I don't know whose brain child it was, but it's quite an ugly child," he said.

McCutcheon said the event was being investigated as a possible misuse of city funds as well as for safety reasons, although he added there was no specific protocol for this case because it had never happened before. "We've been given no reasonable excuse as to why they would even think they could do this. But there could be some very serious ramifications," he said.

An eyewitness told the Albuquerque Journal that he saw the APD helicopter circle the Krispy Kreme and land in a nearby dirt field. "I was angry, and I'm still kind of angry. That's my tax dollars, your tax dollars. You've got no business flying in to get doughnuts," said Keith Turner, who works nearby and was taking a smoke break when he saw the chopper swoop in.

The cost to the department of running a Kiowa, including fuel and maintenance, is $80 an hour, McCutcheon said. A Krispy Kreme employee who asked not to be identified said he didn't see why people were making a big deal of the unusual doughnut run.

"Cops got to eat, too," he said.

New licensing arrangements for New Zealand

Novice licences will no longer be issued in New Zealand, and that country's maximum amateur licence Morse code test speed is now officially 5-words-per-minute, down from 12-wpm.

[From the WIA News]

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om or write to News Desk, PO Box 270, East Melbourne, Victoria 3002

South Yorkshire Internet Repeater Linking Project

More than 226 repeaters around the world are now connected to the IRLP project with more coming on daily. To access any of the repeaters that are connected, first you need to dial the three-digit DTMF node access number. This will be followed by a zero to turn the link on and a 1 to turn it off. For example to call McMurdo Base Antarctica dial 8880 and to turn the link off dial 8881. For a full list of all nodes go to link 137 **http://www.qsl.net/g3zhi**

For a list of frequencies and times when the links are available in South Yorks and a full list of all the world wide nodes visit **http://www.qsl.net/g3zhi/syirlp** or send an sae to Ian Abel G3ZHI, 52 Hollytree Ave Maltby Rotherham Yorkshire S66 8DY, UK

Antarctica Now On IRLP — Just Dial It Up!

Just dial 888 on IRLP to call McMurdo station in Antarctica. The base came on line Wednesday, October 25, 2001. The link goes out on a local UHF simplex channel around the American base. There are about 20 hams there. The base is also in regular contact with the South Pole station **KC4AAA**.

Healesville Amateur Radio Group Inc

HARG will be holding its annual Hamfest on February 24, 2002. The venue will be the usual place, the Healesville Memorial Hall, in Maroondah Highway, Healesville.

To book a table please phone either Gavin on (03) 5968 8482 or Carol on (03) 5962 6098.

100th Marconi celebration...

Stations **KPH** and **K6KPH** will be on the air on 12 December 2001 to help celebrate the 100th anniversary of the first wireless signal to cross the Atlantic, received by Marconi on 12 December 1901 at St John's Newfoundland.

Both stations will use the original transmitters, receivers and antennas of famous ex-RCA coast station KPH. The transmitters are located at the transmitting station founded by the American Marconi Co in 1913 at Bolinas, CA. The receivers and operators will be at the KPH receiving station about 20 miles north at Pt Reyes, CA.

KPH will be active on commercial frequencies 500 and 425kHz with most activity taking place on 500kHz (600m). Power output will be 4.3kW. The antenna is a Marconi T. These frequencies have been made available through the generous cooperation of Globe Wireless, current holders of the KPH license.

K6KPH will be active on amateur frequencies 3545, 7050 and 14,050kHz. Power output will be 1.5kW. Antennas will be double extended Zepps on 3.5 and 7MHz, and an 'H over 2' on 14MHz.

K6KPH will begin operations at 1700z, while KPH will begin operations at 0000z on 13 December 2001.

Commercial practices and procedures will be used on all frequencies to give amateurs the experience of working a real coast station. Traffic lists will be sent and messages for stations that have worked us in the past and sent reception reports will be awaiting in the message rack. All operators will be ex-commercial ops from KPH, KFS and other coast stations.

Amateurs and shortwave listeners are invited to contact or monitor KPH and K6KPH. Maritime stations may call KPH on 500kHz.

KPH reception reports may be sent to Tom Horsfall, 1862 Tulare Ave, Richmond, CA 94805, USA. K6KPH reception reports may be sent to Dick Dillman, 435 Utah St, No 4, San Francisco, CA 94110, USA.

KPH and K6KPH are operated by the Maritime Radio Historical Society in cooperation with the Point Reyes National Seashore, part of the US National Park Service.

Further information may be found on the Maritime Radio Historical Society Web site at **http://www.radiomarine.org**

WIA makes submission to Productivity Commission

In a submission to a body reviewing the Radiocomunication Acts, the Wireless Institute of Australia has called for greater recognition by government of amateur radio, licence reforms, and a better deal in terms of licence fees and charges.

[From the WIA News]

IARU supports ending code tests

The International Amateur Radio Union (IARU) Administrative Council has called for an end to Morse Code testing which it declares is "no longer relevant" for amateur licences.

[From the WIA News]

First Oz ISS voice contact

Trevor, VK3TI made contact on phone with the ISS on October 18 on the pass around 9am local. Trev has been working the ISS on packet for some time now, however as the packet wasn't responding this morning he switched over to phone and back came the Commander of the ISS — a good contact which was not only a first for an amateur in Australia, but is understood to be a first in the *world*, with all other previous ISS contacts being arranged 'telebridge' contacts for schools in the States.

For the record, Trevor used no special antennas — just a dual-band vertical about 5m above the roof line.

Amateur Transceiver Radio Centre

Les and the team at the ATRC now have their own web site and E-mail address. Check out the site at **http://www.atrc.com.au** or write to inquiries@atrc.com.au

North East Radio Group

The club is looking for is the donation of a 70cm radio such as an FM828, to use as the link from the node to its repeater, maybe a 70cm antenna and co-ax as well as a financial donation from interested parties to go towards the IRLP software and hardware, and things like crystals for any non-synthesised radios they may obtain. Any takers?

to page 21 ⇨

THE LATEST 'WONDER' RADIO

By Neil Duncan VK3ND E-mail vk3nd@radiomag.com

The highly-popular Icom HF plus 50 MHz box, the IC-756PRO, has been superseded by a new family member yet again — but don't feel too sorry for it!

ICOM IC-756PROII

The IC-756 has been around for a little while now and has definitely made a name for itself with its DSP and innovative display screen. Version 2, the 'PRO' version, has also been around for a while. But the latest rig to roll off the Icom HF production line, the PROII version of those rigs, represents a very big upgrade of two already great radios.

While the family lineage is striking, the changes are far from merely cosmetic ones. A simple change of ROM in an older model, for example, is not enough. This substantially redesigned HF and 6 metre base transceiver features a 32-bit DSP system with 41 selectable IF filter bandwidths, a large and bright LCD colour display, improved digital twin pass band tuning (PBT), all mode operation and much more.

For me, though, it is the sophistication of the full-colour screen display with its 'Spectrum Scope' and the awesome volume of information it can display that makes the biggest initial impact. But the winning attraction in the PROII version is the even greater quality of its receiver. It also represent the biggest improvements over previous versions.

Missing from the 'optional extras' list at the back of the 84-page manual supplied with the review IC-756PROII is any mention of additional filters or a high stability unit. Why? Because you simply don't *need* them.

The built-in, steep-sided filtering combines very well with the twin passband tuning to combat any band conditions.

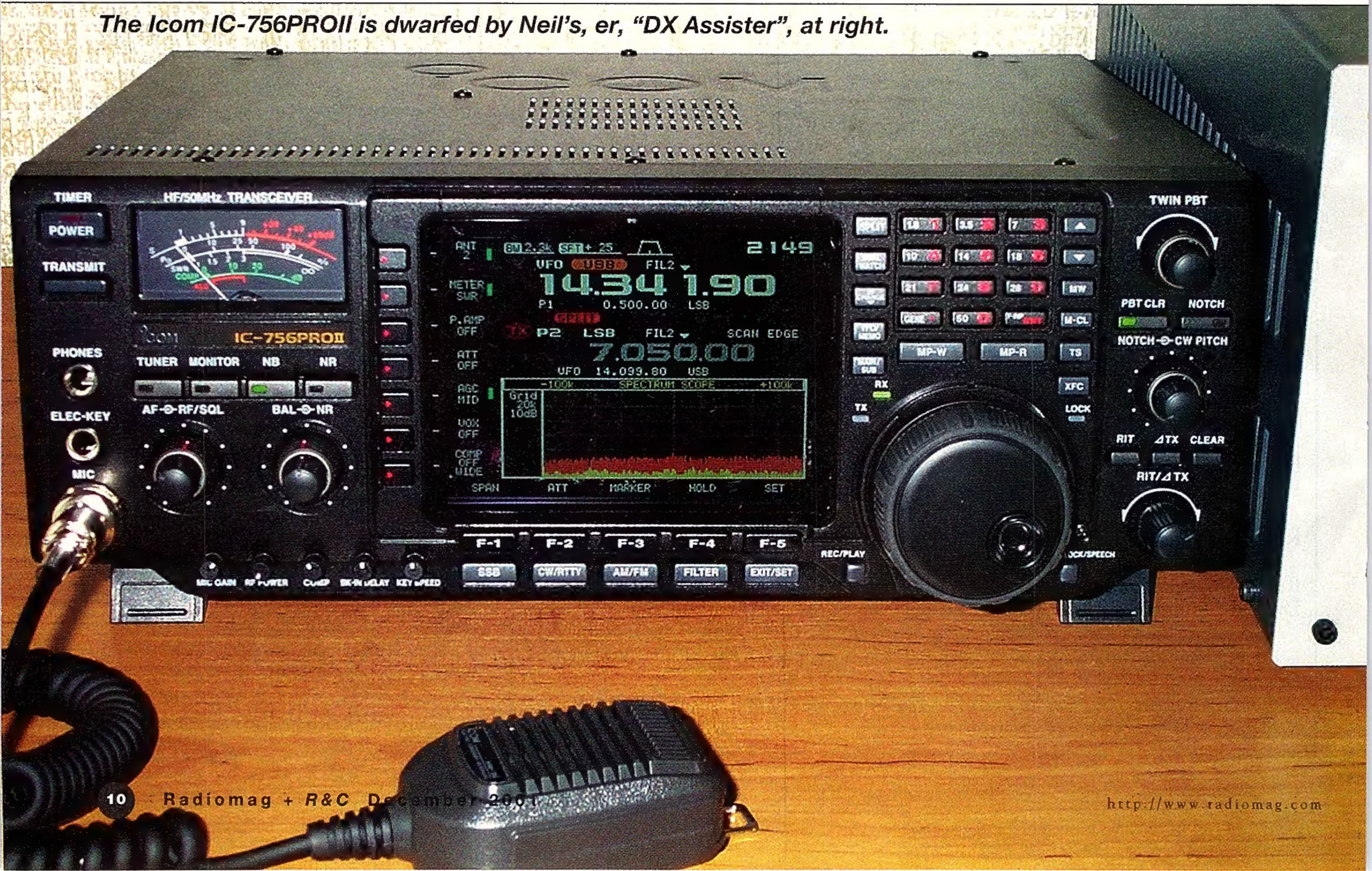
And if that is not enough, you have a choice of three filters *per mode*.

The PROII has enhanced filtering shape and quality with, for example, some pre-DSP IF filtering so that the bandpass shape is not all generated through the DSP system. And frequency stability?

This unit is so good that it can be enabled to show a frequency display down to the nearest Hz – and it *means* it!

The high dynamic range of the receiver front-end makes this one bullet-proof receiver. High-density band conditions, especially in the CW mode, are a trivial matter for the PROII. Mostly, that is due to the DSP system and the newly-designed front end. Certainly, the new radio sounds much quieter and seems even more immune to noise and strong adjacent signals than the last IC-756 (the PRO) I had some time back – and that was one quiet and resilient rig!

But I am getting ahead of myself. What do you get for your money if you drop by your local dealer and pick up this latest radio?



The Icom IC-756PROII is dwarfed by Neil's, er, "DX Assister", at right.

What'll she do?

- Up to 100 watts of RF on the 160-6 metre amateur bands
- General coverage receive from 0.03-60 MHz
- A highly compact and well-presented radio
- All modes including SSB, CW, AM, RTTY and digital modes
- RF speech compression
- Extensive filtering with two-wall variable passband tuning
- Twin peak audio filter and microphone equaliser
- Manual or automatic notch control
- Built-in RTTY demodulator with on-screen display
- Digital noise reduction with level adjustment
- High frequency stability
- Digital voice memories both on receive and transmit
- High performance CW keyer
- Both analogue and digital metering
- Dual watch for two spots on the same band and mode at once
- *Triple* Band Stacking Register
- 'Quick-split' function
- Built-in antenna tuner
- Independent RIT and XIT controls for main and sub-band
- Dual antenna selection system
- Two levels of receiver preamp and three levels of attenuator
- Adjustable noise blanker
- Scanning functions
- 101 memory channels
- Enhanced FM repeater facilities
- Auto and manual notch

For those already familiar with the IC-756 or IC-756PRO, it is interesting to test out the improvements that have been so clearly implemented here. In the development of the IC-756PROII, Icom definitely focused on the improvement of the receiver performance. The front end, the first and third mixers and bandpass filters have been all redesigned.

In the front end, the rig employs a push-pull FET amplifier to reduce the second order IMD. The receiver has most definitely improved in the sensitivity, 'third order intercept point', noise floor and adjustable noise reduction departments. Its operation without a preamplifier has clearly been enhanced, too.

There also is a greatly improved 'front end' to the Spectrum Scope, with a lower noise floor, vastly reduced external radiation and a somewhat enhanced backlighting of the LCD colour display system.

Another key improvement is the receiver AGC action. In the earlier versions, the AGC seemed to be outside of the filtering system. Strong adjacent signals that you couldn't actually hear would be present in the AGC loop and would desense the receiver accordingly. That problem is now entirely gone.

In addition, on days of high noise level, it became apparent to me that when the noise blanker was on in the older 756s, the noise still kicked the AGC around a bit. Now it only acts on post-noise reduction levels of noise. That too, is a huge improvement. The blanker being adjustable also helps. The set is compact and, despite the fact that it requires an external 13.8V source, it is actually quite heavy.

Essentially, this is a transceiver for base station operation but is also definitely designed to target the portable or DXpedition kind of person. DX hounds and CW buffs in particular should queue up to have a go at this rig. I should think that most purchasers will buy it solely for use in their shack, despite the need for an external DC source.

In any case, it is far from cheap at around $8000. Would *you* put one in your car or take it portable? I rest my case…

Boot up time...

You don't just switch this radio on. Oh, no, no — you boot it up! A suitable screen appears when you do, and you have to be a little patient — the radio calibrates itself for the first 10 seconds of its operation.

At the bottom of the colourful, very computer-like opening screen, your call sign can be made to appear while you are waiting — presumably in case you forget it. Soon your wait is rewarded with a change of screen. A very comprehensive set of data emerges in front of you and presents you with a definite challenge when you first see it. Information overload to say the least.

Actually, you also get a choice of several screen appearances, with pictures, fonts and the like being variables. I thought that the display seemed a bit dim for a few minutes when I first turned the set on, but once it warmed up, it was much brighter. Apparently this is normal. It is also normal to become very familiar with the contents of the screen very quickly.

Both frequencies (main and sub) are displayed, along with memory status, filters in use and so on. There is plenty to read! After returning this rig to Icom, and switching on my own benchmark transceiver, my first thoughts were "HELLO! Information… where are you?"

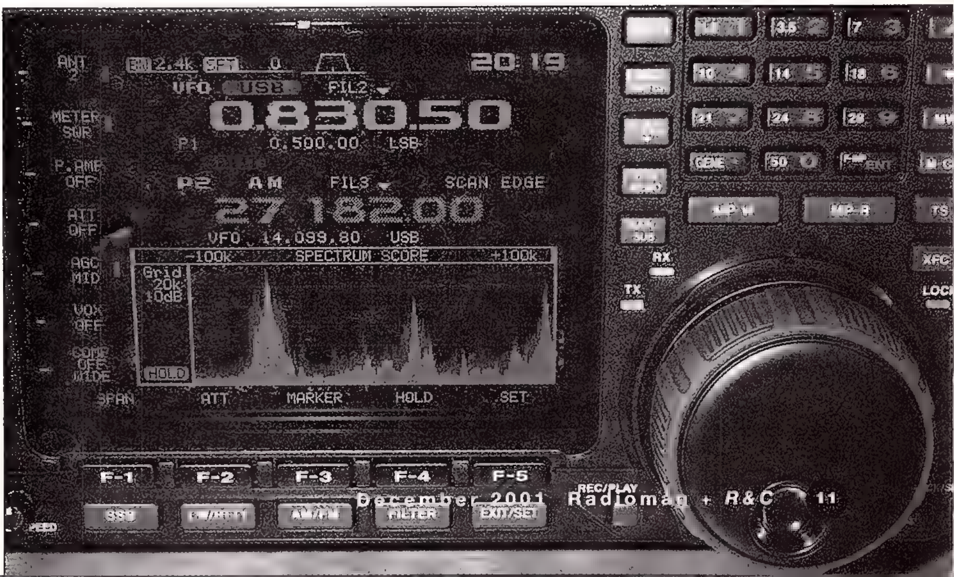
On the back panel of the IC-756PROII, there are two separate sockets for the antennas. I put the coax from my multiband vertical into one of them and the coax from the small 50 MHz vertical (my ex-mobile whip) ended up at the other. You select the antenna from the front panel and the radio remembers the setting from that point on. The internal antenna tuner is fast, positive and has no evidence of any of the reported 'drift' problems apparently seen in earlier versions when operating SSB.

The buttons around the screen have their functions clearly labelled on the screen itself and, naturally, their functions change as you move through various menus.

Actually, despite the set being very sophisticated indeed, there seems a smooth logic about the way everything is offered. 41 IF filters, separate front ends, attenuators, microphone audio shaping, spectrum scope, RTTY display… and the list goes on. That is a lot of gear! But everything seems so easy to find and operate.

While there are buttons all over the place, there are only seven main controls and nothing is overdone or too complex. Yes, there is a highly sophisticated menu system, but once you've set it all up, you tend to leave it be.

Right through the review process, I needed the manual on many occasions, but really only when such things as a 'hold the button down' or a 'press-this-first' operation was called for. The rest was obvious — well, to be more accurate, I mean that after a while it became more obvious. But for the most part, you can operate the radio straight away.

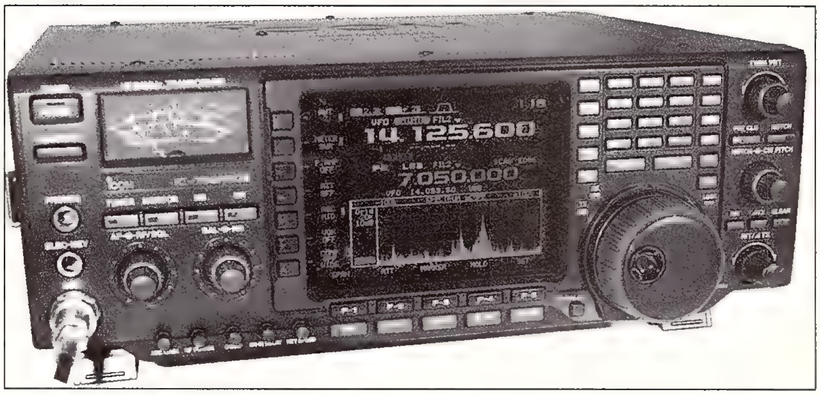


ICOM IC-756PROII

On the air

Some of the settings of the review radio needed immediate adjusting. By default, it tuned too fast on SSB for my liking, and the transmit audio sounded a bit thin. So the manual was called in. The tuning rate for each mode can be independently set and there is a choice of fast or slow tuning within each. At the higher rates, 50 MHz operation is made easy. At the lower end, tuning of weak CW signals with the sharpest IF filtering and '1/4' speed tuning, the rate was simply exquisite. And as for the SSB transmit audio, there are all manner of adjustments you can make, levels and audio response and the like. Having a go at those adjustments gained some immediate rewards. The audio with or without RF compression switched in became excellent — definitely a cut above the rest.

But it was the IC-756PROII's performance on CW that made me really sit up and take note. The receiver filtering has the least ringing on narrow bandwidths that I have ever heard. With the slowest tuning rate and with the twin filtering controls, you can hear things that others would just pass over, probably unaware of their existence. And on transmit, any hint of key-click problems are now gone. The contest keyer, the CW memory system and the smooth break-in all do a very fine job. But best of all is that twin bandpass tuning system. You can bring up graphs and charts and all kinds of things on the screen but the proof comes in the form defending yourself on a crowded, noisy band. Oh, what magic the IC-756PROII can do without any fuss! Amazing…

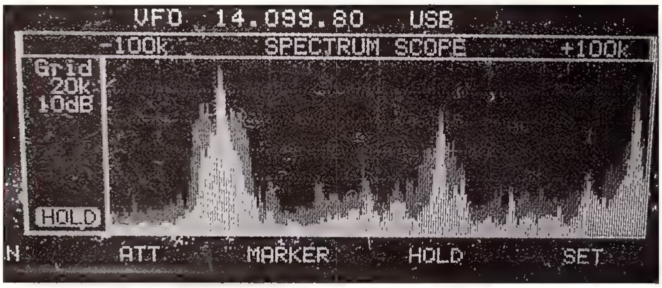


SSB operation is similarly smooth and neat. Now, switching between SSB and other modes on any rig while listening to an important signal can be a pain. On your own rig, try having a peek at the CW DX section while in SSB mode, and then switch over to CW. Most rigs lose the target signal until you tune it in again. This radio can be configured so that you still hear it. There also is a button for recording and playing back audio. How much time, you ask? Well, you get four receive memories of 15 seconds each and four memories for transmit, with 90 seconds in total. They are not only great fun to use but they are definitely useful – and can be controlled from an external source. Now that conjures up some good ideas…

And what about all those filters? Well, I found that it is best to configure it all before you go seriously DX hunting. The choice of three filters per mode and the variable shape factor and widths are somewhat daunting if you are trying to set them up in a hurry! I used the 'set and forget' technique, then moved on, using the outstanding twin IF wall controls to combat any QRM.

Goodness, this radio really has an excellent implementation of IF DSP! For the very first time, I feel that I have used a radio in which totally software-controlled filtering outperforms mechanical forms of filtering (crystals or the like).

Band activity monitoring on the spectrum scope is also a real joy. I recall the top-shelf IC-781 with its wonderful spectrum display scope. It used a proper CRT tube and its response time was correspondingly awesome. In contrast, the earlier LCD display systems always tended to be slow and somewhat ineffective, which put a but of a dampener on their spectrum scopes. Well, the display on the PROII is darned near as good as a CRT scope but occupies far less space and generates no heat. With it, you have a number of adjustments that can be made and the end result is that locating activity around where you are on the band is a breeze. I find that you leave the 'scope on the whole time. You can't live without it.



The triple band-stacking register system now stores preamplifier setting, AGC, mode and filter settings. This should be helpful as the use of preamps is usually necessary on 10 and 15, frequently so on 20, and virtually never so on 40 and 80. I also note that the completely redesigned front-end for 50 MHz operation results in a very quiet, sensitive receiver.

The received audio is smooth, clear and very professional. Naturally, with the full noise reduction system in play, things can get a bit rough at the edges. Both the manual and automatic notch filters are deep and effective. On transmit, signal reports generally are very good but on SSB depended on the audio equaliser settings. When I got it just right, the stations I worked were *highly* complementary of the sound indeed. On CW, the transmitter is simply wonderful.

Frequency setting systems are comprehensive and lack nothing. You can change frequency with the VFO, by pushing buttons (with three 'stacks' per band) or by directly keying a frequency in. The 101 memories can be named and are definitely excellent in all aspect of their implementation. The 'quick memory' system is Icom standard and will be welcome and useful under the pressure of a contest or on a crowded band. The '1/4' rate tuning mode only available on RTTY in the older IC-756 was also made available on CW in the earlier IC-756PRO. Now with the IC-756PROII it is available on SSB too. While I find even the slowest conventional tuning speed a little high sometimes, pressing '1/4' definitely fixes that!

What about the twin receivers? Well, yes, you can listen to two places at once but the same-mode and same-band restriction is a little limiting. Nevertheless, I can see heaps of applications for it. Listen to a split-frequency DX station with one receiver and listen on an intended transmit spot with the other. Do this enough times and you wonder how the less fortunate folks out there manage without it!

The set is ruggedly built and beautifully finished. You should see the size of the heatsink, the toroidal coils and the metalwork used internally! No wonder it is so heavy. The transmit duty cycle must be quite high, I should think. After one hour of non-stop CW and SSB work here, the little black box was as cool as a cucumber or nearly so… I didn't try RTTY or FM (the latter due to a lack of activity here) so I can't comment on 'the worst case'.

As for that RTTY decoder… It is a nice little addition to the radio, but such a mode of the pre-'40s doesn't seem as appropriate as the digital modes now that we are in the naughties (love that title of the year 2000 era and onwards!). Oh well, I must say the RTTY decoder works beautifully; probably in part that is due to the special twin-frequency filtering supporting it. Oh and the plugs and things on the back panel make it a breeze to hook up an external modem for just about any of the popular digital modes.

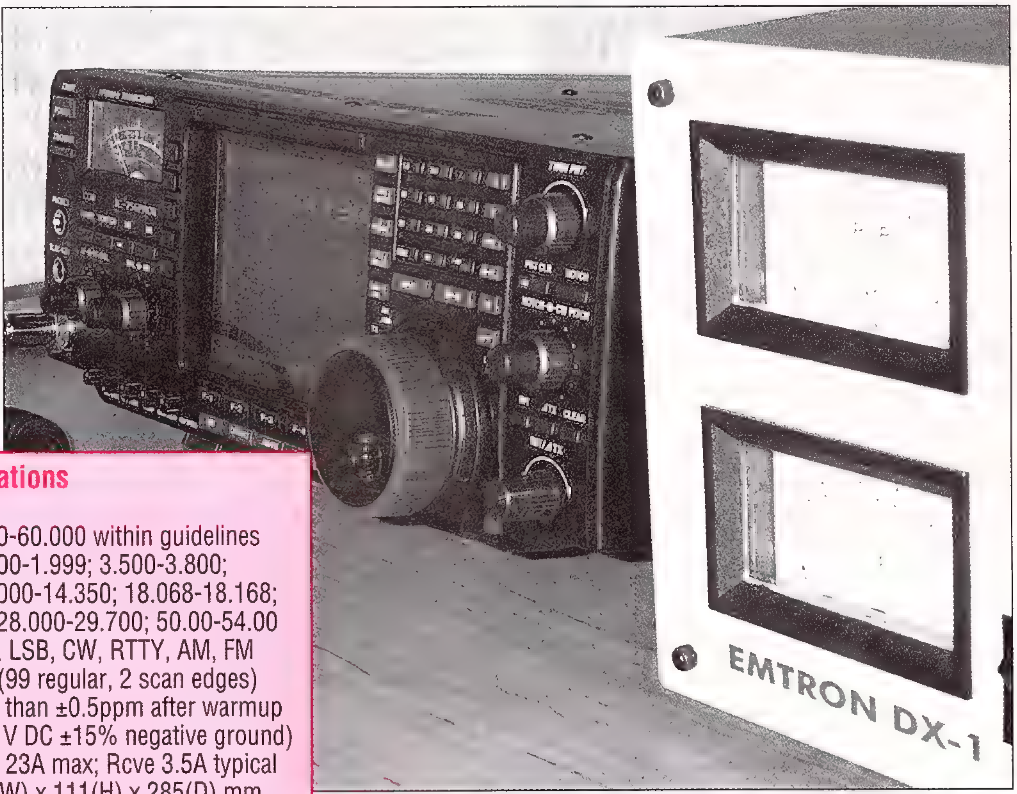
Summary

I just love this compact radio! Maybe the VFO tuning rates didn't thrill me at first but, along with that DC supply requirement, they are the only negatives I found. I am still not sure why such a superbly comprehensive base station radio really needs to be a DC radio.

The spectrum scope is wonderful, the huge adaptability and variability of the DSP IF filtering is almost unbelievable, and the quality of the receiver simply needs to be experienced to be believed. It would be most interesting to sit this rig beside one of its major top-of-the line competitors. I believe it would hold its head very high indeed!

To me, this is clearly the best HF-plus-6 radio Icom has ever produced, and definitely will nudge out some of its opposition.

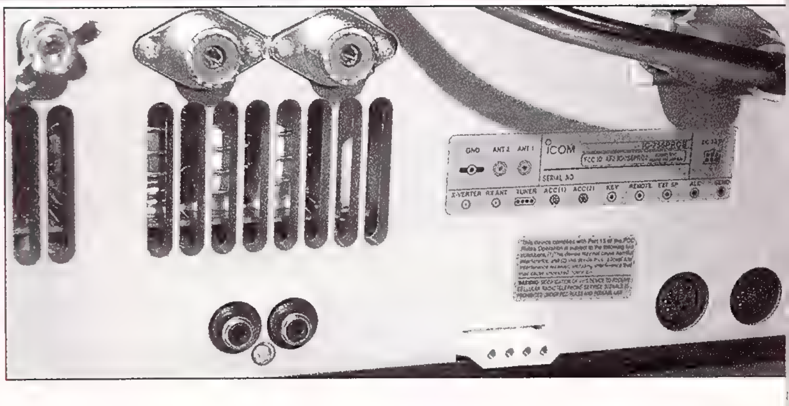
Radiomag + R&C thanks Icom Australia for the supply of the review transceiver.



Specifications

Frequency coverage	
Receive coverage (MHz):	0.030-60.000 within guidelines
Transmit (MHz)	1.8000-1.999; 3.500-3.800; 7.000-7.300; 10.100-10.150; 14.000-14.350; 18.068-18.168; 21.000-21 .450; 24.890-24.990; 28.000-29.700; 50.00-54.00
Modes:	USB, LSB, CW, RTTY, AM, FM
Memories:	101 (99 regular, 2 scan edges)
Frequency stability:	Less than ±0.5ppm after warmup
Power consumption:	13.8 V DC ±15% negative ground) Xmit 23A max; Rcve 3.5A typical
Dimensions:	340(W) x 111(H) x 285(D) mm
Weight:	9.6kg
Screen:	5-inch (diagonal) TFT colour LCD
Transmitter output power:	
SSB/CW/RTTY/FM	Less than 5 to 100W
AM	Less than 5 to 40W
Receive system:	Triple conversion superheterodyne

Intermediate frequencies: 64.455 MHz; 455 kHz; 36 kHz
Selectivity: Selectable, but a typical setting is 2.4 kHz at –6dB and 3.6 kHz at –60 dB.
Spurious and image rejection ratio: more than 70dB
AF output power: more than 2.0W at 10% distortion
Antenna tuner matches VSWR 3:1 HF, 2.5:1 50 MHz



Amateur Radio Companion

An Aussie all-in-one CD-ROM reference

By David Jones, VK4OF

Have you ever wanted to find a single data source, made for local Australian conditions pertinent to our licensing system, that had just about everything you could imagine? Something that could even take you from being an interested observer with an inkling you might want to become an amateur, all the way through to a full call, all in one little package?

And what if this was on just one CD… jam-packed with over 160 MB and 200 pages of data, well written, well presented, and with Internet links to help you along the way?

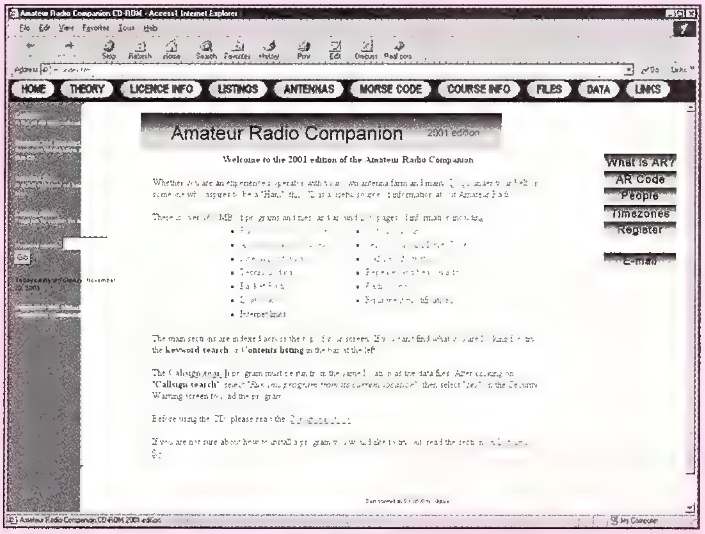
And what if you could have this little gem right now? What would you be prepared to pay for something that could almost replace your heavyweight handbooks, your Callbook, many ancillary text books, and that contained the ACA licence conditions booklets, teaching aids and sample exams? *(If that side of it is good, little wonder! Much of the resource material was written by technical guru Ron Bertrand, who writes our Technically Speaking material. Ed.)*

How about only $22.95. Almost too good to be true, isn't it?

When Chris asked me to do a review of this new product, I noted it was "just" a CD-ROM. Heh… what the heck. I've seen one before. 5.25 inches across, hole in the middle stuff. Right? Well, yep, but what's on this is absolutely amazing. Michael Todd, VK6JMA and his team have assembled a brilliant collection of all the most useful material that we radio amateurs and SWLs need on a day-to-day basis, and put it on a CD that is so inexpensive, it wouldn't be worth copying for your friends.

Let's have a look. It contains all the usual suspects… **Radio and Electronic Theory** and a major section about **antenna design** covering all the bands commonly in "home brew" use. In the areas of **education**, it has sections on Amateur Radio courses, linked to Ron Bertrand's material, plus a section called *Teach Yourself Morse Code*, together with all the licensing and licence specifications data necessary. It even has sample AOCP, NAOCP and Regulations papers prepared by Ron, with auto-results marking to let you know how you are progressing.

In its databases, it has whole sections devoted to the latest up-to-date **Repeater and Beacon Lists**, a full **Callbook** database (with Boolean search), plus a section on **Technical Data**. Then it gets serious.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There are literally *hundreds* of files and programs on specific matters, such as antennas, equipment modifications for many transceivers, advice on CW, techniques and programs for packet radio and radio control devices, station logbooks and Internet links to other places of interest.

It's all well presented in a package for $22.95 plus p&p. Want to know more? Send Michael an email to toddcomp@ bigpond.com. It's probably the best investment in AR you'll make this year, and at the price, you should be arrested for stealing.

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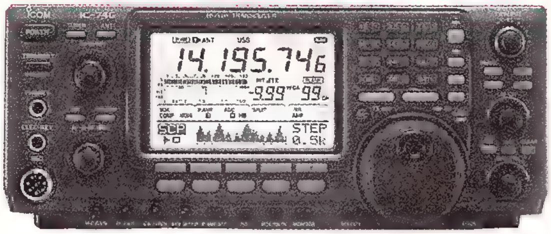

- Your best way to get onto HF plus six and two metres
- Multi-function high resolution display
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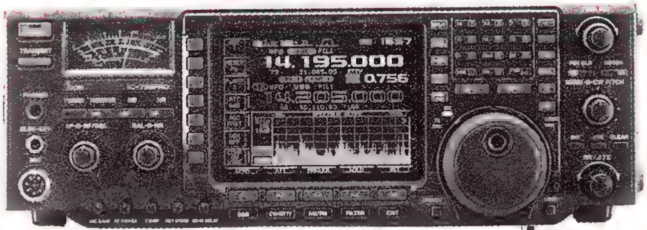
- Fabled Icom *work the world* performance
- Great in the shack or can go portable

IC-756PROII



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- Fantastic colour multi function screen

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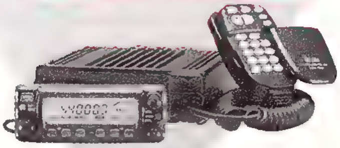

- Affordable dual-bander with no-nonsense Icom quality
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- All bands 160-10 metres plus gen cov receive
- 100 effortless watts output on all bands!

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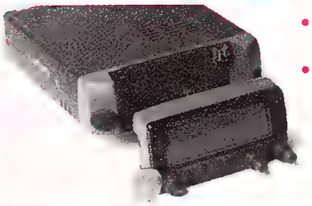

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- Kenwood's latest dual-bander
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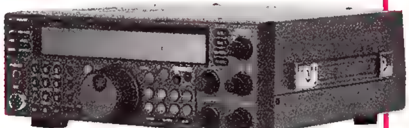

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Shed-loaded Short-wire and the Aussie Mini-pole

(or how to make an antenna seem longer than it actually is...)

By Steve Ireland, VK6VZ E-mail vk6vz@radiomag.com

If you are a radio enthusiast, it doesn't matter how long your backyard is, but you can bet it is always going to be shorter than the antenna that you would really like to put up.

As the Great Australian quarter-acre block has receded into history, this problem has grown more and more serious. Once upon a time, when the former was a reality, a radio enthusiast had little problems with space for antennas unless they were interested in the 1.8MHz band (and, with a little imagination, even this wasn't a problem).

However, these days, when suburban housing blocks are in danger of shrinking below an eighth of an acre and houses often have to almost fill them entirely in order to meet subdivision rules, finding room for a bit of wire that is large enough to work on even 14 MHz can prove a problem.

Now, the classic way to make a piece of wire seem longer is to put a loading coil in it. Unfortunately, loading coils may look relatively neat, but putting them into an antenna can cause its efficiency to be drastically reduced.

Coil-type (inductive) loading is inherently lossy, with some of your transmitter's precious RF energy serving only to heat up the coil — whose presence also causes the impedance of the antenna to drop.

A much better way is to use capacitive (or non-inductive) end loading. Strangely enough, this doesn't actually require capacitors but, like inductive loading, uses wire. What happens is that if a piece of wire attached to another at right angles (or thereabouts), it makes the first piece 'look' electrically longer by virtue of the capacitance that inherently exists between the two pieces of wire.

The Marconi-T and inverted-L antennas both use capacitive loading — the top of the T antenna forms a capacitance with regard to the vertical part, while the horizontal part of the inverted-L similarly forms a capacitance with respect to its vertical part (see **Figure 1**). The great thing about this kind of loading is that it is virtually loss-less, although like inductive loading it will also cause the impedance of an antenna to drop.

However, the main drawback of capacitive loading as compared to inductive loading is that it can take up much more room. What this article will show is how to implement capacitive loading in such a manner that it takes up very little space indeed — and how you can make a really BIG antenna in a very small space.

Going Overseas

What got me thinking about using capacitive loading was a visit to my father Ossie G0TYJ's home in Eastbourne earlier this year. My Dad has a 3-element Yagi for 14/21/28MHz at the low height of about four metres above ground (which gets out amazingly well) and covers the other HF bands with a 32m length of wire about five metres high, end-fed via an ATU against a G6XN counterpoise.

Dad's 32m length of wire got out well on 3.5 and 7MHz, but did not load up on 18MHz and was a relatively indifferent antenna on 1.8MHz — his son's favourite band. While the reason for the problem on 18MHz was hard to understand, the poor performance on 1.8MHz was easy — the antenna was shorter than a quarter wave on this frequency and the 10m or so of a quarter wave that does most of the radiating was the bit that was missing.

The reason for the piece of wire being 32m long was quite simple — the back yard was that long! As a result, I decided to electrically lengthen the antenna to 41m, giving a full quarter wave length on 1.8MHz. Capacitive loading was definitely the way to do this, but there was a problem — to keep my Dad's mind at rest, the loading had to be virtually invisible.

You see, the reason why my Dad's 3-element Yagi is only four metres high — and his 32m 'short-wire' is at five metres height — is to keep the neighbours happy. When Dad had to apply to the council for planning permission to put up his Yagi, he ended up having to defend himself against several objections from neighbours. Eventually Dad won the day, but was understandably not keen to further increase local tension — and the major complainant was in clear sight of the far end of his wire antenna.

My original idea had been simply to attach 9m of wire to the end of the 32m 'short-wire' and take the former away at right angles toward a nearby garden fence. Of course, the only suitable fence belonged to one of the complaining neighbours.

However, the solution to the problem was relatively simple. The end of my father's antenna was supported by a small wooden garden shed — and the 9m of additional wire could be non-inductively wound on/supported by the walls of this structure.

Principles of non-inductive winding

A few years ago, I built a miniature quad antenna for 7MHz[1] that used non-inductive (capacitive) loading. What I learned in the course of the development of this antenna was that it was possible to make low-loss capacitive loading relatively easily by bending a wire back on itself, as long as a minimum spacing was observed.

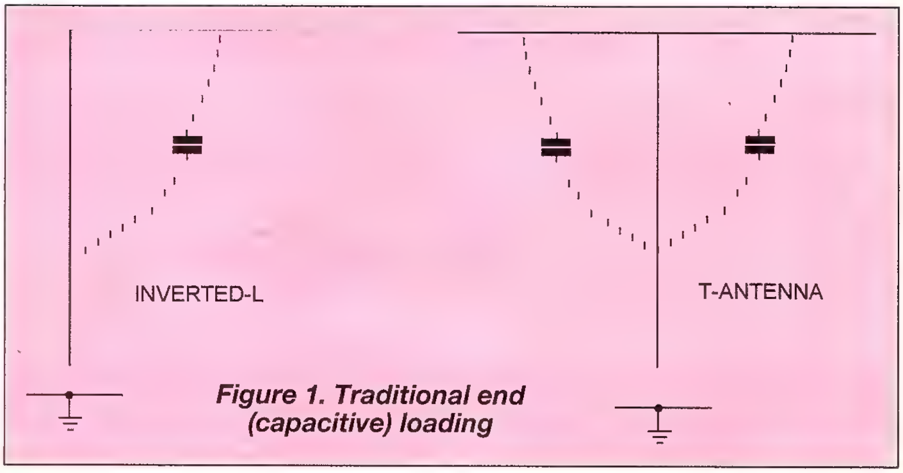

Figure 1. Traditional end (capacitive) loading

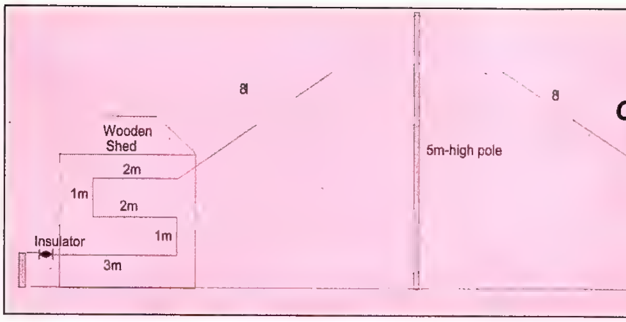

Figure 2. Fold-back-style capacitive loading, used in the G0TYJ Shed-Loaded Short Wire

At 7MHz, this transcribed to about 23 cm (9 inches) or around 0.005 of a wavelength.

Scaling this spacing up to 1.8MHz, it meant that the wire had to bent back on itself with a spacing of about one metre. As a result, 9m of plastic-covered wire was wound on the sides of the garden shed in the zig-zag manner shown above in **Figure 2**, supported at each corner by a 3mm brass screw.

Using an Autek RF-1, the antenna was trimmed to resonance at 1.830 MHz and its impedance measured against the G6XN counterpoise (which is an electrical quarter wavelength on the same frequency). To my pleasure, the antenna's impedance on 1.830 MHz was about 34 ohms and it loaded well using Dad's Transmatch ATU on 1.8, 3.5 and 7MHz, as well as all the WARC bands including 18MHz.

Over the next few nights, I used the capacitively-loaded antenna on the 1.8MHz band, where its performance was vastly improved over the previous 'unloaded' 32m piece of wire.

Despite the antenna only being 5m in height at its highest point, stations were easily worked around the UK and in Europe on SSB, plus a contact was made on CW with my friend UA2FB in Kalingrad.

Some ideas to try

You could try the G0TYJ shack-loaded short wire design, even if you haven't got a wooden garden shed at the end of the antenna, by non-inductively zig-zagging the wire you haven't got room to put into the air between two 2-3m long wooden poles, (ie 20mm diameter dowel or similar) mounted on top of Star pickets (see **Figure 3**, overleaf).

If you have a wooden or fibre cement fence, you could use this as a structure to mount the capacitive loading on — in a similar manner to the way my Dad and I used his garden shed. My Dad's antenna also worked well on all amateur bands 1.8-28MHz, including the WARC bands when fed with a commercial T-match (or Transmatch) aerial tuning unit. Although Dad's antenna was an end-fed wire, there is no reason why the same capacitive loading should not be used on a centre-fed antenna.

Those using 3.5-28MHz multi-band dipole antennas such as the G5RV or W3DZZ types with a yen to try the top-band (1.8MHz) can do this simply by adding 20m of wire to each end of the antenna and zig-zagging it in the manner previously described along garden fence lines (see **Figure 4**, overleaf).

If the ends of the existing multi-band dipole are reachable by hand (ie the antenna is in my favourite inverted-U configuration), the 1.8MHz loading can be simply connected (and disconnected) using large crocodile clips, allowing a simple method of band changing.

The 'rule of thumb' for adding capacitive loading to a centre-fed antenna is that you should only add as much to each end of the antenna (in length terms) as half of the existing antenna.

➡

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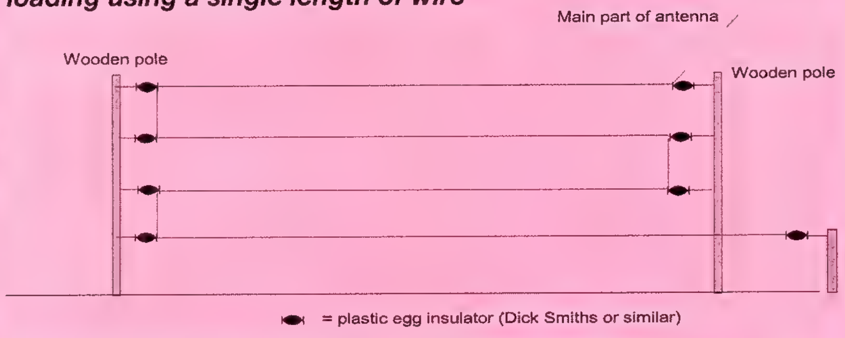
Shed-loaded Short-wire and the *Aussie Mini-pole*

Figure 3. Using wooden poles to support fold-back capacitive loading using a single length of wire



● = plastic egg insulator (Dick Smiths or similar)

NOTE: insulators are attached to the wooden poles by short lengths of 4mm diameter nylon or dacron rope and the folded-back wire tensioned.

This means that if you can make a 14MHz dipole cover 7MHz by adding capacitively-loaded 'tails' each of around 5m in length.

Similarly, you can make a 7MHz half-wave dipole into a 3.5MHz one by adding capacitively loaded tails of around 10m in length. Now, if you have a backyard that only allows a 10m span between two 10m-high pole-type masts, you could try a 'VK6VZ mini-pole' and put up a 7MHz dipole in an inverted-U shape[2], then add 10m capacitively-loaded tails to each end that can be connected/disconnected with croc clips (see **Figure 5**).

You would then have an antenna that could be centre-fed with 50 ohm coaxial cable and cover 3.5, 7 and 21MHz with an excellent performance. On the other hand, if you fed it with open-wire feeder and an ATU and left the tails permanently connected, you would have an antenna that could work all the way from 3.5 to 28MHz — in a space that only occupies 10m (see Figure 5)!

After adding capacitive loading in the manner described, if your dipole-type antenna is to be coaxial cable fed, you should carefully 'cut' the tails for resonance at your favourite frequency on the lowest frequency band (where the antenna is a half-wave). This is easiest done using an Autek RF-1 antenna bridge, or by putting a few watts of RF into the antenna, seeing where it is resonant/what the SWR is, and then trimming/adding wire for a minimum SWR.

One final but important note: Remember that the ends of the capacitive loading/antenna will be at a high RF voltage when you are transmitting, and touching them could result in a bad RF burn. Try to make the ends of the antenna inaccessible to the unwary, particularly children.

Conclusions

Capacitive loading is an excellent and highly efficient way of electrically lengthening an antenna — and of squeezing a quart-sized dipole or end-fed wire into a pint-sized backyard.

In combination with an inverted-U shaped dipole or end-fed wire, the absolute maximum efficient use of space is possible, allowing (in some cases) a half-wave antenna to be erected in a quarter of the space usually required.

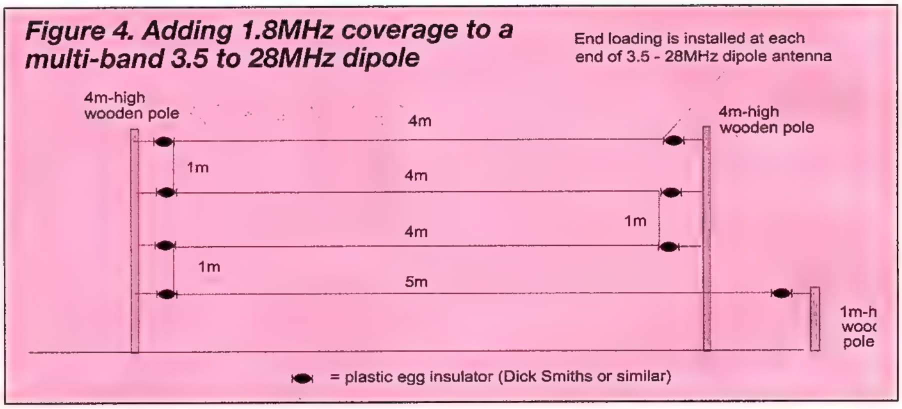
© Steve Ireland, VK6VZ, 2001

References

[1] *Miniature Quads for Big DX* by Steve Ireland, VK6VZ, *Radio and Communications*, April/May 1999

[2] *'A U for You' — DXing from small yards with U-shaped dipoles* by Steve Ireland, VK6VZ, *R&C*, January/February 2001

Figure 4. Adding 1.8MHz coverage to a multi-band 3.5 to 28MHz dipole


End loading is installed at each end of 3.5 - 28MHz dipole antenna
4m-high wooden pole
4m
4m-high wooden pole
1m
4m
4m
1m
1m
5m
1m-h
wooc
pole

● = plastic egg insulator (Dick Smiths or similar)

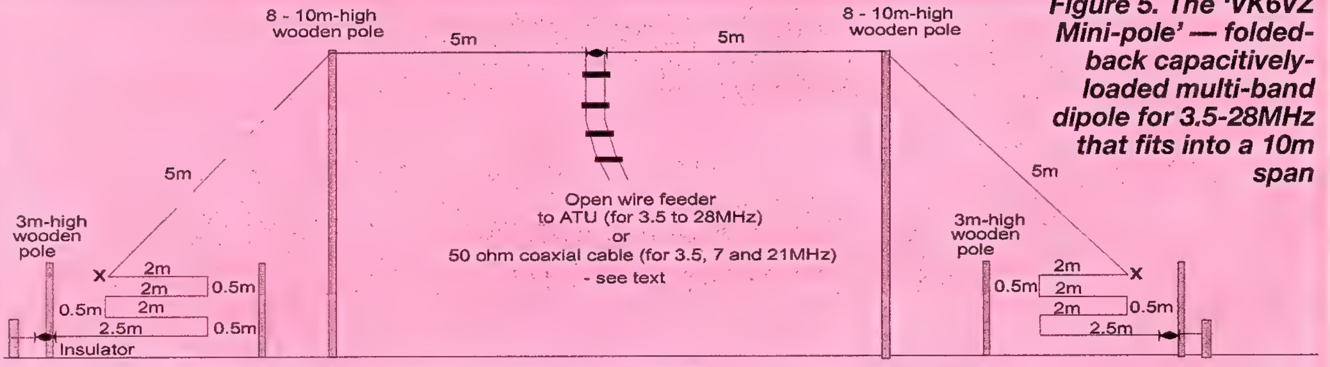


Figure 5. The 'VK6VZ Mini-pole' — folded-back capacitively-loaded multi-band dipole for 3.5-28MHz that fits into a 10m span

NOTE: for details of how to suspend fold-back capacitive loading, see Figure 3.
If antenna is fed with coaxial cable, antenna is cut at points X and crocodile clips inserted - points X are open circuit for 7 and 21MHz operation, short circuit for 3.5MHz operation.

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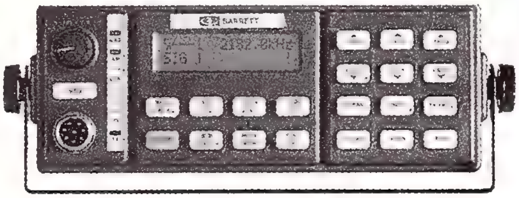

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JUDICIOUS REX

Imagine that you have gone into a shop, picked up an object with a label which shows a price of $x, gone to the check-out, only to be met by the cashier telling you that the price is wrong and the goods are actually for sale at a greater price.

I suspect that we have *all* experienced this and you have probably, like me, reacted rather negatively to the suggestion. What I want to discuss is the legal situation and whether the stall holder or shop owner is obliged to sell at the advertised price or whether he is able to insist on the higher amount.

To ignore legislation for a moment, the answer is as follows: when a shop advertises something for sale, it is not offering it for sale at that price. Rather, it is giving you the opportunity to make an offer at the amount displayed, which the shop owner accepts by taking your money or rejects by telling you that the goods in fact cost more.

I am sure that no reader of this magazine has ever done this, but there are unscrupulous people in the community who have been known to swap tags from a $5 item to a $50 item and then try to hold the shop to the cheaper sum. I chuckled once in a K-Mart when the customer in front of me was clearly trying the cashier on — or if not, was not very smart. He had a computer game machine in a brand new box etc, and on the front was a ridiculously low price tag. On the top was a tag for some hundreds of dollars, the real price, but this guy was going to go to the top to get his machine for a few bucks.

The poor cashier did not, to give her her due, lose her cool, or for that matter accuse the guy of putting the sticker on it himself. Indeed, the supervisor was called and the guy was going to take legal action, as far as the highest Court in the land unless they gave it to him. He was a bush lawyer of the worst sort. He professed a knowledge of the law which every sentence showed that he did not have. But he sounded convincing, such that I almost wondered if I was wrong and he was right.

Being the nice person that I am, I was sorely tempted to identify the fact that I was a lawyer and tell him that he was totally wrong, but I waited until he left to consult his own lawyer. I did not think he had earned the right to my free legal advice when he could be seeing a colleague, paying a modest fee for it and obtain the satisfaction of knowing that he had received value for his investment.

I did tell the rather shaken cashier that I was a lawyer and laughed at the guy's hide in trying this con.

Just recently I was asked for advice on a similar matter where some people had gone into a shop which was advertising that everything was on special and reduced by 15% or 20% etc. They decided to take advantage of the specials and picked out a lot of things to buy, only to be told that the sale had finished and the goods were so much more.

Now this is, in my opinion, a different situation, because the shop keeper has made a misleading and deceptive proposal to attract people into his premises. Whilst in contract he may have been okay, he was committing a breach of the Trade Practices Act or the State trading legislation which forbids respectively, companies and individuals from engaging in misleading and deceptive conduct. Had my clients taken legal advice at the time, or had they wished to, they could have made a complaint about this false advertising and the shop keeper may have been found liable to substantial penalties depending on how deliberate his conduct was.

Section 56 of the Commonwealth Act prohibits what is called "bait advertising" and makes it an offence to advertise goods at a specific price if there are reasonable grounds for believing that it will not be able to supply them at that price.

Had the sale ended an hour before, the discrepancy could be explained. But if he had not had a genuine sale at all, the penalties could be very high.

We frequently see stores advertising "all stock reduced" or the like, only to find that the advertisement is deceptive in that only *some* stock is reduced. This is also misleading and deceptive and the type of conduct that the Trade Practices Commission becomes very interested in.

When you are faced with a situation of being asked to pay more than the marked price, it is your right to refuse to complete the purchase. You are not entitled to insist on receiving the goods for the lesser sum, although, as I have said, legislation may make the shop keeper liable for breaches of fair trading laws if the error was intentional or was done to "bait" a potential customer.

On an unrelated matter, we received an E-mail from way down under in Tassie, asking about the merits of **public liability insurance** for a small group of citizens band enthusiasts. Over the years I have endeavoured to respond in a way that is of general interest, rather than giving specific legal advice to any particular individuals. I would suggest that anyone interested in my views on this subject might like to read my previous articles on them in R&C. For a very modest fee the editor can still supply them if, perchance, you have thrown out your copy.

This issue is very controversial and has been made more difficult by the collapse of HIH and FAI earlier this year. It used to be possible to obtain public liability insurance for a small sum but those days are, I fear, well gone. As well, I believe that the events of September 11 in the United States will also have a huge impact on insurance premiums, driving them up further and causing an increase in premiums to help to offset the claims arising from the terrorists' acts.

You might look more carefully, next time you receive a policy of insurance, because the wording has been changed already to expand the exclusion clause. Liability has been excluded in the past for acts of war but now, acts of terrorism have been also excluded. This means that if you are otherwise covered by insurance, but you suffer loss at the hands of a terror organisation, your policy excludes liability so you would not be able to claim. Policies in existence on September 11 did not have this exclusion, so the insurance industry will have massive claims for the loss of the Twin Towers buildings, the various aircraft, the loss of lives, not to mention the property losses.

There are now some events for which it has become impossible, or at least impracticable, to obtain public liability insurance. Our local hall used to be hired out to various groups for dancing lessons on Saturday mornings, functions on Saturday nights, gymnastics during the week and even as a polling booth. Each separate group may need to obtain its own insurance but, as many readers have found I am sure, the cost of this has been quoted at more than the money they hoped to receive at the door. However, the conundrum is that as the organiser of such an event are you prepared to risk not being insured and finding yourself sued by the person who slips and breaks their leg?

This situation will only become worse as the insurance industry reacts to the payments it has to make for the United States incidents.

To new readers, please feel free to contact me with questions that you think might be of interest to others, as your questions form the basis of most of the columns that I have written over the years. After all, this is a service to you the reader, to not only get some free, general legal advice, but also some kudos when you can point out to your friends that your curiosity formed the subject of a discussion in this magazine. Who knows, my old friend John Kolm might just see a cartoon suggestion in one of your questions which would give you added prestige amongst your peers!

news desk

...from Page 9

Australian X-Band MW Station Listings

Increasing use is being made of the Region 3 spectrum allocation of 1611-1701 kHz for Australian medium-wave broadcasters. Australian operations in this spectrum are limited to 400 Watts maximum antenna input power, and bandwidth must not exceed 6 kHz (ie double-sideband, AM, and up to 3 kHz deviation from the nominal carrier frequency — technically known as "narrowband"). For Australian stations operating in the spectrum 526.5 to 1606.5 kHz, total bandwidth is 9 kHz.

This reduced audio bandwidth for the X-band stations is designed to allow greater distribution of transmitters in the same geographical areas, similar to the manner in which mobile telephone cells are positioned.

If you would like a free electronic copy of the "AUSTRALIAN X-BAND GUIDE", when it becomes available, please send an E-mail requesting this to mw.aus@bigpond.com

Your request should include your name, E-mail address and postal address, please.

Australian medium wave information

A special edition of the on-line *Electronic DX Press* (#225) newsletter has been published, dedicated entirely to Australian medium wave broadcasting activity, with much of the information sourced to the sibling "Australian Mediumwave Club — Mediumwave Australia".

The EDXP does not normally cover MW, but there have been some interesting recent developments concerning MW across Australia, including progressive power increases for many broadcasters, and heightened activity in the "X-band" — 1611 kHz to 1701 kHz. So, the special edition is devoted to these activities.

As it is *far* too long to include here, this special edition of the EDXP Newsletter is available to anyone who requests it, anywhere in the world, sent via E-mail as a plain text file.

If you would like to receive a copy, please send an E-mail to Bob Padula at monitor@radiomag.com, with your real name and location.

United Kingdom

Twelve sites across the UK have been selected to take part in the new Foundation Licence 'pilot scheme'. The sites are a mixture of clubs, schools, youth organisations and a number of disabled candidates.

This trial is designed to test out the syllabus, tutor guide, examination software and administrative procedures before the new licence is introduced on January 1, 2002.

As part of the Foundation Licence training pilot scheme, the RSGB will be offering week-day afternoon Morse assessment sessions at RSGB headquarters in Potters Bar.

[From Qnews]

Guatemala

Amateur radio played a role in reuniting with his family a man who had been hiding in the jungles of Guatemala for over three decades. The CQ magazine website reports that 72-year-old Salomon Vides of El Salvador emerged from the Guatemalan jungle recently after hiding there for 32 years from a war that lasted about 100 hours.

In 1969, El Salvador invaded Honduras and Vides, a migrant worker, ran into the jungle to escape retaliatory raids. The Organisation of American States quickly brought the war to an end, but Vides says he never got the word. He was discovered in August by Rene Sonabo, a taxi driver and Guatemalan ham radio operator, and Sonabo's son.

After persuading Vides that no one was trying to kill him, Sonabo used his amateur station to relay the news to Vides's stunned family in El Salvador. He has since been reunited with his brother, but the family had not been able to locate his wife and three children.

[CQ via ARNewsLine]

Ham sailor sets sail for home

Ham radio's senior sailor David Clark, KB6TAM, set sail this week from Trinidad to complete the final leg of the adventure of his lifetime. Clark, who is 77, is attempting to become the oldest person to sail solo around the globe. He hopes to arrive back in Ft Lauderdale, Florida, on December 7. Clark has been using amateur radio aboard his vessel to keep in touch with his family and friends.

His immediate goal is St Croix in the US Virgin Islands, said his wife, Lynda, but if the weather cooperates and everything goes well he may proceed directly to Great Inagua in the Bahamas. "This is technically the completion of the goal, since his outgoing and incoming paths will cross again — where he checked out and will check in again," Lynda Clark said. "However, we will feel he has finished the goal when he reaches Ft Lauderdale where we all said good-bye to him two years ago."

Accompanied by his dog, Mickey, Clark departed South Florida in December 1999 in the 44-foot steel-hulled sloop, the *Mollie Milar*, named for his mother. Mickey was lost and Clark himself nearly died after the vessel sank last February off the coast of South Africa.

Not one to give up that easily, Clark was able to purchase another sailboat — a smaller one that he named Mickey — and resumed his quest in April. He's been sitting out the Atlantic hurricane season in Trinidad, where he arrived in July.

Clark was expected to be checking in on the 20-metre Seafarer's Net on 14.313 MHz. The final leg from Trinidad to Fort Lauderdale is approximately 1500 miles.

For more information on Clark's journey, visit these Web sites **http://www.dclark.com** and **http://www.captainclark.com**

[From the ARRL Letter]

SARC News

About 30 SARC members attended an enjoyable open day on 3 November. Much gear was bought and sold, old and new acquaintances made and renewed. Altogether a good day was had by all. Pictures at **http://www.winshop.com.au/allied/ham1.htm**

The Club also had a picnic day on 4 November. Over 60 people attended a very successful day. The young and adventurous went boating, skiing and donutting. Donuts are large rubber rings towed behind the boats. The old and not so bold talked, watched and ate.

Your input is welcomed to *News Desk*! You can share your club news with others or, for traders, advise readers of upcoming new products.

Write to News Desk, PO Box 270, East Melbourne 3002!

THE 27MHz DXer

By **Jack Haden** VK2GJH
E-mail: 27dx@radiomag.com Mailbag: PO Box 299, Ryde, NSW 1680

There's nothing like the lure of rare DX to get the 27MHz band shaking and a rattling, and so, with the appearance of 284-AT/0 St Peter & St Paul Rocks DXpedition in late September things really started moving at a cracking pace. However, this was only to be the start of things to come, with more rare DX popping up in due course. Due to the combined Oct/Nov issues there was no way I could give you any advance warning, also I was away in Brunei and East Malaysia exploring the jungles of Borneo with my daughter during the school holidays, and thus out of touch with the DX world.

Quite a few people were also chasing after some other semi-rare DX with Iran (154), Vietnam (242), Brunei (225), Spratly Islands (241), Solomon Islands (135) and Temotu (339) also on offer in the Sep/Oct period. Like St Peter & St Paul Rocks, the Spratly Islands (241) drew DXers out of the woodwork like moths to a bright light. A resident slim also was doing the rounds signing as 252-DT/0 saying he was on Revilla Gigedo Island however, he proved to be elsewhere.

Evan 43-EW-01 reports that he worked five new countries as a result of all this activity with many long hours spent both on the radio and spotting via the Internet as a result. Not a bad effort considering Evan just uses 50 watts to a home constructed five-element beam. Evan made this observation: "One of the biggest problems I have found is that many people consistently call on the station's transmit channel when they are clearly working spilt frequency. This makes the going slow, hectic and most confusing to others as the DX station is buried under the callers transmitting on the wrong frequency."

QSLing protocols

It may be wise to keep in mind that an ever-increasing number of QSL managers and DX stations alike are firmly against radio callsigns and club stamps being placed on envelopes. Abe 43-SP-001 and Dave 43-SD-181, both of whom act as QSL managers for some DX stations, specifically ask all DXers to observe this requirement.

Generally, callsigns and club stamps etc plastered all over the face of the envelope is not a good move, as it may draw unwanted 'attention' to the post office box holder resulting in mail being tampered with. Last of all, remember to include sufficient funds for return postage and a self-addressed air mail envelope as a final courtesy.

Antarctica (140)

Quite a number of reports have been circulating about the consistent activity of 140-AA/UA (AN-006) on Biscoe Island. The station will be active until 31 Jan 2002 so there's still plenty of time left to seek this one out. This activity comes close on the heels of the Chilean Antarctic operation signing as 140-URA-01 reported just a few weeks back — maybe it's the same fellow as the QSL route is same for both callsigns. QSL to PO Box B-19, Kyiv 01001, Ukraine Republic.

Valé Roy 137-AT-011

There are not too many DXers around the world on 27MHz who don't know Roy 137-AT-011, active for many years from the Isle of Man. Roy passed away on October 1 whilst attending the Alfa Tango meeting in Asti, Italy. A veteran Alfa Tango member and loyal to the very end Roy gave many a DXer the 137 prefix for a new one on 27MHz. Roy was very active in the running of Alfa Tango reaching the position of Vice President, not to mention being Director for the Isle of Man section of the club for many years. Roy was also known as 137-EU-101 as a member of the European-based Echo Uniform DX Group.

World DX Forum

Disclaimer: *All times published are in the UTC/GMT format. QSL routes and IOTA designators are given where known. Information is derived from a number of sources in good faith and can possibly contain some inaccuracies and transcription errors beyond my control.*

The Pacific

Belau (Palau) will be about as 134-SD/0 in the period 01-31 Dec 2001. QSL cards will go to Yoshi at PO Box 13, Minoo-562, Osaka, Japan.

The **Federated States of Micronesia** has been very active in recent days with Flo operating as 230-SD/OC-011 from Moch Island around 0400z with a good 5x9 signal. Flo will be about until 31 Dec. QSL to PO Box 15, Chef-Boutonne 79110, France. Also noted was Kirino 230-SD-102 an hour or so later, also a good 5x9 at times, plus Roses 230-SD-105 worked by Derrick 43-SD-108 at 0920z 3x3 report.

Fiji used to be quite rare on 27MHz but this situation has now changed with recent activity from Toni who has been active as 99-LD-010 in recent months. The FAT DX Group reports that a station will be active from Fiji on weekends only as 99-FAT-010 or 99-FAT-101, possibly Toni wearing another hat I guess? QSL the FAT contacts to PO Box 63, Caudan-Cedex 56854, France. No callsigns or club stamps on the envelopes. You may also like to look for 99-AT/DX commencing 20 Dec and concluding on 8 Jan 2002. QSL to PO Box 127, Aberdeen AB9-8HQ, Scotland.

French Polynesia will be about until 31 Dec 2001 as 201-MU/DX. This is quite an easy catch for those in the Pacific. QSL to Segundo at PO Box 2294, Burgos 09080, Spain.

New Caledonia isn't exactly rare DX in this part of the world but for those who enjoy collecting QSL cards from various clubs you may like to look for 172-IR/DX. The operation will be active until 31 Dec 2001. Cards go to PO Box 212, Utrera 41700, Spain.

The **North Cook Islands** appeared around the DX traps during October as 249-LD/OC-014. Victor was heard around 2300z on 24 Oct a good 5x8 report in Sydney.

The **Solomon Islands** proved to be most popular with Nicolas and Phillip active as 135-AT/0 from two islands (OC-047 & OC-149) between 6-22 October. Derrick 43-SD-108 knocked this one over on 16 Oct at 0105z while they were signing from OC-149, exchanging a 5x7 report. Nicolas was far from impressed with the number of duplicate contacts detected in his logs with some stations making in excess of four or five contacts.

As of 19 Oct some 2670 contacts had been made. QSL via PO Box 180, Vasto-CH 66054, Italy.

The **South Cook Islands** will play host to three activations in November, the first being 250-LD/DX in the period 2-19 Nov. QSL to PO Box 28, Botticino-BS 25082, Italy. Also active will be 250-FU/0 in the period 7-31 Nov. QSL to PO Box 4902, Haarlem 2003-EX, The Netherlands. Finally, the last one to look for is 250-SD/0 operating from 13 to 27 Nov inclusive. QSL via PO Box 17, Kenilworth, Warwickshire CV8-1SF, U.K.

Temotu Islands drew the crowds with 339-AT/0 high on everyone's "wanted list" due to its very rare DXCC status. The operation ran from 7-13 Oct in conjunction with the 135-AT/0 operation. Fortunately, for us in the Pacific anyway, this is a relatively easy one to knock over so to speak. QSL to PO Box 11, Cabrieres d'Avignon 84220, France.

Tonga was reported as active signing 96-SD/0 over the weekend 10 and 11 November, the period of the activation is unknown.

Europe

Albania will be about the DX traps as 251-BIG/DX in the period 1 Nov through to 31 Dec 2001. QSL cards will go to PO Box 1141, Palermo 90146, Italy.

Andorra aroused quite a bit of interest with 51-IR/000 noted the other weekend around 1000z. Although the signal was only a 5x3 here there were still many people in the Pacific chasing a contact. Also heard about was 51-SA/DX from time to time.

The **Azores Islands** have been quite active as 75-OD/0 (EU-003) Sao Miguel Island and will remain about the usual DX traps until 500 contacts are amassed into the logs. QSL to PO Box 32, Gliwice-2, 44-102, Poland.

Belarus (Byelorussia) came through quite well at 1410z with Derrick 43-SD-108 hearing 317-VP-10 a workable 4x4-signal report.

The **Faroe Islands** made a nice catch for Milo 43-MV-01 when he nabbed Olavur 52-AT-234 at 1100z the other night. Olavur was a good 5x8 at the time. QSL to PO Box 1222, Torshavn FO-110, Faroe Islands.

Hungary isn't exactly rare DX but it was interesting to note a very good signal around 0855z coming from Gerd 109-AG-5. Gerd was a reasonable 5x6 and also noted up on the next channel was Gerry 109-KPI-103 also around the 5x6 mark at 0901z.

The **Isle of Man** came through quite well the other evening with Joe signing as 137-IR/IOM-010 around 1000z. Joe came through quite well to start with before starting to fade out around 1032z. Also noted was 137-IR/DX (same operator?) on 4 Oct 5x6 at 0856z.

Jan Mayen Island suffered a huge pile-up of eager DXers around 1102z with Per 211-AR-164 labouring away under pressure. Per was a reasonable 5x5 but was often swamped with deliberate interference from fellow Europeans.

Luxembourg will be about the DX circuit as 54-AS/DX until 31 Dec, so there's plenty of time left to catch up with this one if need be. QSL to PO Box 3795, Potroupoli 13201, Greece. Also heard around the traps was Serge 54-FAT/DX, QSL to 14-FAT-350.

Mount Athos drew the masses with 254-PG/0 about on 20 Oct a good 5x5 at 0725z. The pile-up was nothing short of overwhelming to say the least. QSL to PO Box 145, Kraine, Mount Athos 63086, Greece. However, one should be suspicious of this operation as Tim KP-82 reports his letter was returned to sender despite using the correct address.

Rodi Dodecanese (Rhodes) was about in recent weeks as 59-SG/DX with very good signals reported by many in the Pacific. QSL to PO Box 67313, Athens 15102, Greece.

Romania popped in and out of the noise with fade affecting the signal from Jack 233-EC-050. At best Jack managed a 4x5 and made a couple of quick contacts into New Zealand at 0949z.

The **Slovak Republic** has been doing the rounds as 330-AS/DX and will remain about until 31 Dec 2001. QSL to PO Box 3795, Potroupoli 13201, Greece.

Africa & Indian Ocean

Algeria was reported in the October column active as 146-PAS/DX. The latest news on this operation states that the station will be about until 31 Dec 2001. QSL to Pablo at PO Box 422, Oviedo 33080, Spain. There's also been some confusion about the callsign with some activity also reported from 146-PAS/0 in late October 2001, same station?

Ascension Island should be about the DX spots until 31 Dec 2001 as 148-IR/0 so there's a little bit more time left to secure this one if needed. QSL to PO Box 8, Aigen 5351, Austria.

The **Cape Verde Islands** appeared around 0700z with a very good 5x8 report coming from 205-AT-489. The station was operating in an IOTA capacity (AF-005) and was attracting quite a pile-up of eager European stations at the time.

The **Chagos Archipelago** is another quite rare DXCC catch out of the Indian Ocean, so you may like to look out for Seta 228-SD/0 active until the end of November. Seta also plans to visit the Seychelles (152), India (57), Oman (180), Saudi Arabia (48) and Yemen (323) after the 228-prefix stint. QSL via Dave 43-SD-181 at PO Box 523, Wahroonga NSW 2076. Dave requests that no callsigns or clubs stamps be placed on mail directed to him, otherwise it will be returned to sender. Return postage compulsory.

Cocos Keeling Islands always attracts the hordes due to its semi-rare DXCC status, at 0500z I heard 193-IR-101 a reasonable 5x5 report.

The **Comoros Islands** came through quite well at 0710z with Milo 43-MV-01 working Cheik 185-SD-101. Cheik was a good five by six at the time and had just come onto the band so not many people knew he was about.

Djibouti will be about until 1000 contacts are logged signing as 186-KPI/0. QSL to PO Box 6121, Zaragoza 50080, Spain. Another one to look for, reported as active, is Charly 186-SD-103 spotted around 0600z on the weekends.

Ethiopia proved to be a very nice catch for Simon 43-SS-204 when he nabbed 206-MU-511 around 0745z the other evening. Although signals were not all that good Simon managed to exchange a reasonable 5x3 report each way.

Libya should be currently active as 92-PAS/DX until 31 Dec 2001. QSL to PO Box 1921, Oviedo 33080, Spain. I have seen little mention of this operation around the news outlets, perhaps it is a weekend only operation?

Namibia came through quite well the other day with Milo 43-MV-01 snaring Robbie 74-AT-011 around 0645z. Robbie was fading in and out but managed a good 5x7 at best, QSL via PO Box 602, Tsumb 9000, Namibia, South-West Africa. Alan 43-AR-09 reports working 74-SD-011 (same fellow as 74-AT-011?) at 0600z on 29 Oct exchanging 5x7 reports.

Niger Republic is scheduled for activity as 245-AT/DX in the period 15-21 Jan 2002. QSL cards are being directed to PO Box 5, Ladon 45270, France.

Nigeria could be still about as you read this with 89-ST-001 active until 28 Nov, QSL to PO Box 5, Quarto 80010, Italy.

St Helena should prove to be very popular with 63-FAT/AF-022 scheduled to commence operation on 15 Nov. The duration of this DXpedition is not yet published. QSL to PO Box 63, Caudan-Cedex 56854, France.

Senegal will be about for those who still need this one confirmed, and there will be two callsigns in play. The first is 64-SD/DX and the second as 64-TDT/0. The activity will be conducted from 8-20 Dec 2001. QSL both calls to PO Box 9298, Tilburg 5000-HG, The Netherlands. In addition, quite a bit of activity has been reported from 64-SD-111 who has been heard in our early to late evenings.

Sri Lanka burst through the noise at 0452z with Chris 177-SD-101 making Derrick 43-SD-108 quite happy with the pair exchanging 5x3 reports.

Asia/Middle East

The **Andaman & Nicobar Islands** always attract the DX Big Guns due to their very rare DXCC status. It was reported that 253-IR/AS-101 was about in early October although I failed to hear any trace of the operation.

Armenia is currently about the band as 301-KPI/0 and will close once the magic 1000 contacts are scribbled into the logs. QSL to PO Box 6121, Zaragoza 50080, Spain.

Brunei is seldom heard on 27MHz and thus there were many eager DXers awaiting the appearance of 225-IR/0 (OC-088) in the period 3-10 Oct inclusive. I heard the operation around 0900z with Florent at the controls a fair 5x3 report. QSL to PO Box 1410, Roth 91142, Germany. If you missed that one, then you may like to look for 225-SD/0 active 27 Oct to 31 Dec 2001. QSL to PO Box 15, Chef-Boutonne 79110, France.

East Malaysia was about in late Sep as 58-IR/DX (OC-088) Borneo Island with many in Europe keen to get this one in the log. Peter 43-FP-103 noted Florent at the microphone around 0813z working split frequency into Europe. He was 5x6 at the time and managing the pile-up quite nicely reports Peter. QSL to PO Box 7, Baldenheim 67600, France.

Georgia moved around the DX traps with 306-ET/0 attempting to drum up some business around 0550z the other evening. Most DXers in the Pacific already have this one confirmed, so despite his 5x7 signal he went begging for most of the time. Another one heard from this prefix was Rino 306-RS/0 who was also heard drumming up business the other day around 0700z, plus Lia 306-SD-101 5x7 at 1045z.

Iran aroused quite a bit of interest in this part of the world when Jan 154/19-PAW-001 appeared around 0712z the other weekend. The pile-ups were mean and nasty to say the least with Jan having big problems controlling the unruly Europeans. Despite Jan being a fair 5x4 report very few in the Pacific made it through.

Israel surged through the usual crud from Asia at 0800z with Joseph 97-YZ-016 pushing the meter to a good 10dB over at times. Joseph was still quite strong some two hours later when I noted him working Robert 41-RR-103 in New Zealand at 1011z.

Laos drew the windbags from Europe out of the woodwork with 239-AT/DX a good 5x9 around 0955z on the 19 Oct. The bedlam on the frequency was laden with the usual nonsense associated with rare DX calls on the band with a path to Europe.

Qatar is reported about the usual DX traps as 115-KPI/0 and will close when 1000 contacts are accumulated into the logs. QSL to PO Box 6121, Zaragoza 50080, Spain.

The **Spratly Islands** operation signing as 241-IR/0 (AS-051) attracted big attention from around the world due to its very rare DXCC status. Although the team was running a couple of days late they were heard on air quite strong on 4 Oct 5x8 report around 0730z. QSL via PO Box 1410, Roth 91142, Germany.

Thailand doesn't arouse all that much interest in this region due to plenty of 27MHz activity from this DXCC entity in recent years. However, if by chance you chased up 153-IR/AS-101 on Koh Samui Island in October, then cards go to PO Box 1410, Roth 91142, Germany.

Turkey drew the IOTA chasers with 116-AT/AS-153 operation from Bogsak Island noted at 0702z a fair 5x3 report. QSL route unknown.

Vietnam still sits fairly high on the 'wanted' list of many a European DXers shack list, so it wasn't surprising that Jay 43-SD-133 should find himself the centre of attention as he signed 242-SD/0. Jay was active from 10 Sep through to 9 Oct and although activity from Jay wasn't consistent, he was about and quite a few worked him. QSL to Frank at PO Box 30, Bangor NSW 2234. Self addressed envelope and return postage compulsory.

Latin America/Caribbean

Anguilla in the West Indies will be about as 219-AT/DX in the period 15-21 Nov inclusive. QSL to PO Box 6, St Junien-Cedex, France (no postcode given).

Argentina has been about as 4-VIP/0 and was a good 5x9 into Sydney around 2245z. QSL to PO Box 1, Tabaccaro 91020, Sicily, Italy.

Aruba popped out of the noise at 2159z with Basilio 232-RA-012 a weak, but workable, 4x4 at the time. Later, at 2255z, I noted Basilio much stronger with a good 5x8 signal peaking nine at times. Another to look for will be 232-IR-101 active from 1 Nov through 31 Dec 2002 giving us some 13 months to secure this one. QSL to PO Box 1410, Roth 91142, Germany.

Honduras powered through all the crud with a 5x9 plus signal from 28-SD/DX at 0033z the other Sunday. This station is currently active until 31 Dec 2001. QSL to the QSL manager Dino 1-SD-001.

The **Netherlands Antilles** showed there was good propagation to the Caribbean with Sergio 7-MU-107 a very strong 5x9 plus 10dB at 0007z the other Sunday. Quite a number of Pacific stations were pursuing a contact at the time.

Peru made the log of Derrick 43-SD-108 when he worked Tony 8/3-AT-025 on 16 Oct at 0525z exchanging a 5x3 report. QSL to PO Box 50423, Sao Paulo 03029-970, Brazil.

Saint Maarten caused a small stir amongst the Asia/Pacific region with 166-RK/DX (NA-105) a good 5x6 the other day around 2245z. The 166 prefix used to be quite rare on 27MHz but judging by the small pile-up noted I think nearly everyone has this one in the bag by now. QSL to PO Box 5, S.Teresa Riva-ME 98028, Spain.

Saint Martin made the log of Derrick 43-SD-108 when he contacted 207-AT/NA-105 at 0105z with a good 5x5 report. This is an IOTA operation with a number of contributors reporting this one as active.

San Andres was reported about the traps recently as 81-PAS-101 went the rounds. On 16 Oct I noted the station a good 5x6 into Sydney around 0102z.

St Peter & St Paul Rocks drew the DX community out in droves with the appearance of Stacey 284-AT/0 working the pile-ups in late September. At 2354z I heard her very weak 3x2 signal which surged up and down through the noise. This island group, way out in the Atlantic off Brazil, is always a hard path for Australia and New Zealand DXers to crack. If you were lucky and made the grade, QSL to PO Box 1551, Bilbao 48080, Vizcaya, Spain.

Future activity...

Albania 251-FGB/0 soon, Angola 39-RS/0 soon, Antigua & Barbuda 120-AT/DX soon, Bahrain 150-AT/AS-002 Dec? Belau (Palau) 134-SD/0 01-31 Dec, Eastern Kiribati 266-IR/0 1 Feb to 1 Mar 2002, Japan 25-SD/AS-008 Oshima Island soon, 25-SD/AS-017 Okinawa Island soon, Macedonia 332-FGB/0 soon, North Cook Is 249/13-IR-102 8 Nov to 8 Dec, Rotuma 325-IR-006 now, concluding 31 Dec, San Andres/Providencia Island 81-SD/NA-033 soon, Singapore 98-SD/0 05-20 Dec, St Kitts & Nevis 283-DT/0 soon, Western Sahara 300-IR/0 soon.

Epilogue...

Quite an interesting month to say the least. As usual, I would like to thank the following people for their contributions to the column: Simon 43-SS-204, Derrick 43-SD-108, Milo 43-MV-01, Ian 43-PIG-099, Gavin 43/26-GB-102, Gil 43-GD-960, Allen 43-AR-09, Peter 43-FP-103, Mark 43-ACT-01 and Evan 43-EW-01.

You must send a SAE and 45 cent stamp for a personal reply, or better still, just pop me an E-mail which is a lot more quicker and reliable.

Catch you all next month...

73 de Jack.

27MHz Viewpoint
Clubs?

By **Jack Haden** VK2GJH

In the heyday of CB radio there were more clubs that you could poke a stick at, however times have changed and the number of clubs about has decreased dramatically. Most people joined a club for the social contact, a chance to rub shoulders with those of similar interests, others joined just for the sake of being one of the "in crowd" as it was just a case of keeping up appearances?

Club activities, focusing on radio activities, were also a big draw card for many new to the hobby and thus a niche market developed. Some clubs were orientated towards the art of DXing and DXing alone, nothing more, nothing less. Others were focused on community activities, especially the small clubs that developed in country towns and regional areas. Many small clubs based in country towns used CB radio as a means of staying in touch, keeping abreast of community issues; it brought people together on a common meeting ground.

A number of CB radio clubs rallied members together to raise money for community projects and local charities with many a fund-raiser taking place. The funds were usually raised by way of raffles, BBQs, special dinners and weekend car rallies, levies on QSL cards, DX contests, radio marathons and camp outs etc.

Sadly, in the last decade or so the club scene has gradually disappeared. CB radio as a hobby is on the wane, without a consistent membership basis no club can survive. Also many people have become disillusioned with the club movement and have opted to go it alone on the airwaves. Whilst we cannot revive the so-called good old days, we can hear what today's CB radio operators have to say about the role of belonging or not belonging to a club plays in their radio hobby.

John 43-JT-01 has been on 27MHz for 12 years now and his main interest are DX and DX alone, so let's see what John has to say:

"I was a member of Alfa Tango for a short period of time. My decision to join was more or less based on the pressure placed on me by some friends. After they all joined I felt the odd one out and was made to feel that I was missing out on something big, so I rather reluctantly joined up. Basically, I am a fairly restrained sort of person but found myself absorbed into an 'us versus them' subculture where we "AT" people were deemed to be a cut above everyone else on the radio.

"While I enjoyed the obvious benefits of membership, the stationery, QSL cards and members directory, I felt the rest of the social aspect to be just an ego trip for may. After the fiasco in Melbourne where a certain member in a position of trust managed to bleed the club coffers for his own financial gain I decided to go it alone. Like many others who had their fingers burnt in the AT problems of the past I now enjoy being an "independent" and find that I still make many good contacts on the radio, regardless of the callsign used."

Michelle (no longer active on radio) sent me a rather lengthy E-mail about her club experiences back in the early 1980s when CB radio was really rocketing along. Here is an edited selection of her observations.

"I became involved in CB in 1979 as my older brother was heavily into it at the time. I thought the club would be a good way for me to learn more about the hobby and electronics. I found out this was not to be so, the club was quite sexist and I was soon relegated to, what was considered by the males who dominated the club, jobs for the Sheilas to perform. Making sandwiches and cakes for the supper, serving tea and coffee, making sure there was sufficient ice to keep the beer cold and doing the cleaning up afterwards.

"To them I was just my brother's sister, to be used for domestic duties and, although an active CBer, was hardly acknowledged as such. The club was run by the boys for the boys with the girls having little say in anything related to the radio side of things. Women endure enough harassment on the airwaves without being belittled in person at club events — little wonder why there a so few women on the CB."

Roy 43-RR-105 is very unhappy with the current situation of radio clubs, both amateur and CB, speaking with 20 years experience here's what Roy has to say: "Over the years I have been involved with three CB clubs dedicated to DX on 27MHz, and all have been unhappy experiences. I was ripped off, as too were many others, by two Italian-based DX clubs that operated branches in Australia. The clubs were run by people with high opinions of themselves, both on air and off. There seemed to be a minority group of elitists running the 43 division for the majority, complaints were seldom addressed, financial accountability of club funds was sloppy and inconsistent.

"What disturbed me was the number of personal vendettas that were launched against members who dared to speak out and who refused to tow the line of the elite hierarchy. The Australian club I joined was a haphazard affair, run by a short sighted and narrow-minded team of busy bodies and gossipmongers.

"I then decided to pursue amateur radio. I took up an invitation to attend a local amateur radio club meeting hoping to be encouraged to make the step from CB to amateur radio. Well, was I in for a bloody surprise — far from being welcomed into the fold I was generally ignored at the meeting.

"CB radio is apparently a dirty word with many radio amateurs and thus I was looked down on and instantly relegated to second class citizen. Yet, in the same breath we have the WIA telling people 'Join your local amateur radio club, become involved, you are most welcome, as amateur radio needs new people and more friends, do your exams with WIA accredited club courses!'

"This was far from what I experienced, those who did approach me started the conversation by asking 'what's your call sign?' and when I said I didn't have one, but hoped to get one soon I was more or less deserted. They huddled into their pitiful groups, the VHF/UHF mob, the RTTY fanatics, and the Big Gun DXer crowd.

"To get into one of these huddles, and become accepted as a fellow radio enthusiast on club night, one needed the golden key — an amateur call sign. No callsign? Then no look in!

"Also what stunned me was the lack of young faces. At the time I was just 25 years old and possibly the youngest at the club meeting. The meeting in fact resembled a pensioners rally or an over 55s meet. I'm sorry, but that's how it looked to me — young people should be seen but not heard? Needless to say I left the meeting with a very negative viewpoint on amateur radio, and still today I am reluctant to have another shot and thus remain a CBer."

Des UNIT-400 has been around since 1974 and enjoyed the old mateship values instilled in clubs long faded into the past. "It was good fun to be part of the club scene in the 1970s. I was an active member of a club in south-western Victoria and I forged many friendships that are still enforced to this very day.

"We raised money for local charities and conducted mini DXpeditions into the countryside setting up big beams and chasing exotic DX. Everyone helped out; we went to fellow members' homes and helped put up new antennas, educated the younger members on basic radio protocols and generally had a good time. I looked forward to each monthly meeting; we even established a link with some ham operators for those CBers who wished to move on to greener pastures.

"Sadly, with the hobby on the way out there are few CB clubs left in rural areas these days due to declining numbers, why can't we bring back the good old days?"

Alex 43-AX-01 first became interested in CB radio through a work mate and joined a local club in Brisbane. "I learnt quite a lot from being a club member and enjoyed the company of those with similar interests. We had many splendid outings and social functions but found the attitude of some members a little annoying.

"There was a number of 'gunna' members, all huff and puff but little action. I'm 'gunna' do this and I am 'gunna' to do that — but they never did! These same people rode on the coat tails of others and were quick to jump on the glory train after the hard yards were done. I dropped out after a couple of years as the club appeared to lose direction and lacked purpose, other members also left and soon the club just folded up. These days I am an independent and enjoy this status. With the internet, I feel no real need to join another club as I can access DX information via the modem and keyboard!"

In conclusion...

So there we are again, more views on the hobby of CB radio and the club scene from a variety of individuals. There were many more comments submitted but due to space limitations I could only publish a certain number. Special thanks to those who took the time to E-mail me with their opinions. Best 73s de Jack.

TECHNICALLY
• Speaking •

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Part 6: Understanding Antennas and Transmission Lines

Welcome back to *Technically Speaking*. We will be continuing from, though not totally dependent on, where we left off last month. Still, if you have not read the first part on antennas in the last issue I would encourage you to do so.

In presenting this series we are trying *not* to rush things. Many text books seem to be able to cover antenna topics in a few paragraphs and move on, often leaving the reader a bit bewildered. Here we take our time to develop concepts. From the feedback it seems as though you are mostly happy with this approach.

Also in the mail has been a lot of comment about the noise bridge and the use of it. Well, after we have covered further the theory of antennas we'll be taking a closer look at the practical side of antenna measurements and equipment use.

(Here in the editorial office we, too, have received a lot of mail about our idea of a Noise Bridge kit for you to build at home. We're working on a potential supplier now, and hope to have good news for you very soon! Ed.)

The fields around an antenna

We looked last month at the fields about an antenna from the point of view of explaining just how a radio wave is radiated. But there is a little more that we need to know about the *types* of fields around an antenna.

You may, at some time, want to measure the **field strength** about an antenna. You would use a field strength meter. A basic field strength meter used by the radio amateur is nothing more than a crystal set with its own antenna, driving a sensitive voltmeter. Measurements can be taken around the antenna to determine its radiation pattern. Adjustments can be made to the antenna, and corresponding changes in the relative field strength can be measured to determine the effectiveness of those adjustments.

Calibrated (absolute) field strength measurements may be required to determine compliance with the new 'electromagnetic radiation limits to human exposure'.

When taking measurements we need to take care with the *separation* between our antenna and the field-strength meter. Any two antennas in close proximity are said to be coupled. Think of a transformer. There is magnetic coupling between the primary and secondary windings of a transformer. Similarly there is a coupling between any two antennas — the difference is in the *type* of coupling which, in turn, is determined by the distance between the antennas.

Also if you place a receiving antenna (or anything else) very close to an antenna whose pattern you wish to measure, **mutual coupling** between the two antennas may actually alter the pattern you are trying to measure. This sort of mutual coupling can occur in the region very close to the antenna under test.

This region is called the reactive near-field region. The term 'reactive' refers to the fact that the mutual impedance between the transmitting and receiving antennas can be either capacitive or inductive in nature.

The reactive near field is sometimes called the **induction field** (see Part 5), meaning that the magnetic field is usually predominant over the electric field in this region. The antenna acts as though it were a rather large inductor or capacitor, storing energy in the electric or magnetic field rather than propagating it into space.

For making pattern (field strength) and EMR measurements, however, we do not want to be too close to the antenna being measured. For simple wire antennas, the reactive near field is, for practical purposes, within about a half wavelength from an antenna's radiating centre. (Later we will discuss how mutual coupling between antennas in the near field is used to change an antenna's characteristics such as gain and directivity. A Yagi is just a dipole with other dipoles (called directors and reflectors) mutually coupled to it.)

The strength of the reactive near field decreases in a complicated fashion as you increase the distance from the antenna. Beyond the reactive near field, the antenna's radiated field is divided into two other regions: the **radiating near field** and the **radiating far field**.

Older references refer to the near and far fields as the *Fresnel* and *Fraunhofer* fields respectively. I will use the more descriptive terms 'near' and 'far'.

The point between where one field stops and the other starts is rather 'fuzzy'. The boundary between the radiating near and far fields for most 'simple' antennas can be safely taken as:

$$\frac{2L^2}{\lambda}$$

where 'L' is the largest dimension of the physical antenna, expressed in the same units of measurement as the wavelength (Greek letter lambda, λ).

Figure 1, below, shows the three fields in the vicinity of a simple wire antenna.

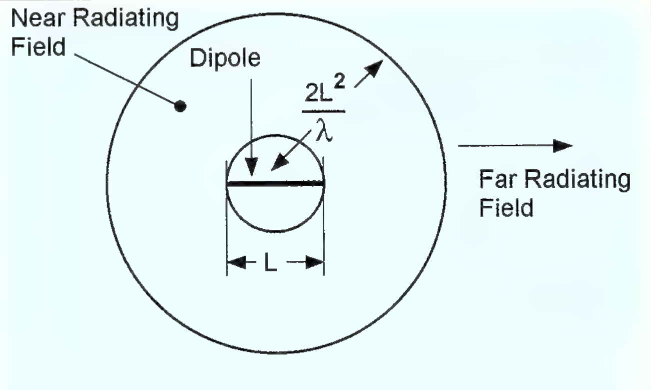

Figure 1. - Near and far fields about an antenna

The field the transmitting radio hobbyist is concerned most about is the radiating far field. The only time you need consider the near field is when you wish to do field strength or pattern measurements of you antenna. You should ensure you are taking those measurements in the far field region as per Figure 1.

Far-field radiation is distinguished by the fact that the field strength is inversely proportional to the distance, and that the electric and magnetic components, although perpendicular to each other in the wave front, are in time phase. The total energy is equally divided between the electric and magnetic fields. Beyond several wavelengths from the antenna, these are the only fields we need to consider. For accurate measurement of radiation patterns, we must place our measuring instrumentation at least several wavelengths away from the antenna under test.

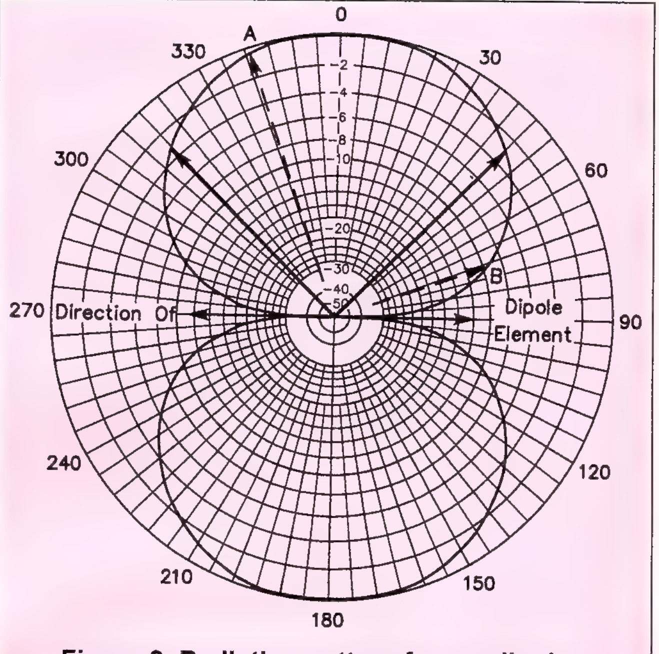

Figure 2. Radiation pattern from a dipole

Figure 2 shows the radiation pattern around a dipole antenna. This pattern could be plotted by taking field strength measurements around the antenna for 360 degrees and plotting the results on a chart.

As you can see, a dipole antenna is *bidirectional*. It radiates primarily in two (opposite) directions. Maximum radiation is in the directions of 0 and 180 degrees. The two lines at approximately 45 and 315 degrees are the points (on a dipole antenna) where the radiated power drops by 3 dB. These are often referred to as the *half power points* since minus 3dB is the same as 'half power'. The angle between the two half power points is the *beamwidth* of the antenna. For our dipole the beamwidth is from 315° to 45° giving 90°. This is certainly not very 'sharp' but still represents an antenna gain over an isotropic of 2.14 dB.

An antenna's gain is a consequence of focussing power in a useable direction. Power is not created, the available power is instead focussed and radiated in the desired direction.

The closer the half power points, the sharper the directivity and the higher the gain of any antenna. For a complete picture of the radiation pattern of a dipole imagine the pattern in Figure 1 being rotated through 360 degrees. This is what has been done in **Figure 3**, at right.

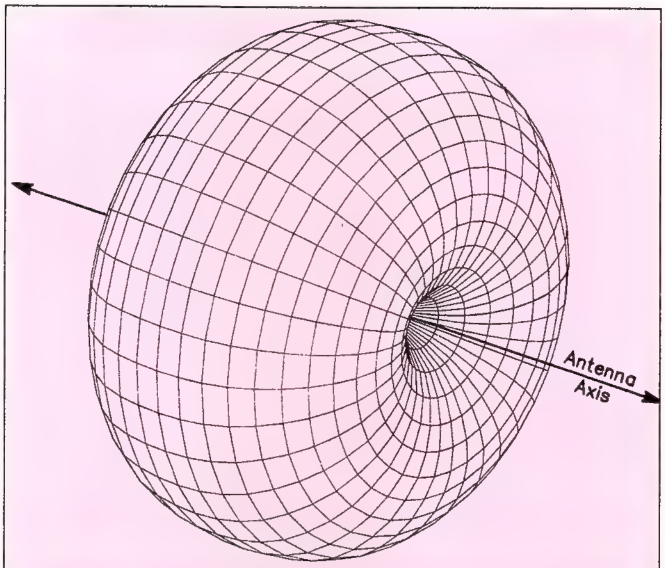

Figure 3. A 3D representation of dipole radiation

For most radio amateur work, relative values of field strength (rather than absolute) are quite adequate in pattern plotting. In other words, it is not necessary to know precisely how many microvolts per metre a particular antenna will produce at a distance of one kilometre. The exception is EMR measurements which must be absolute.

Radiation resistance

An antenna is a transmitter's load. A load will dissipate (or in the case of an antenna *radiate*) power if it is resistive. We do not want an antenna to contain any reactance. Why is this? Reactance, either capacitive or inductive, does not dissipate or radiate *any* power.

In the normal power equations — for example in the well known power equation: $P=I^2R$ — you can not, *must* not, replace the 'R' with either Xl (inductive reactance) or Xc (capacitive reactance). A capacitor or inductor does not dissipate any power (ignoring losses). Energy stored in the electric or magnetic fields of a reactance during 'charge' are retuned to the source (the transmitter) during discharge as it were.

In a resistive circuit, the current and voltage are in phase. In reactive circuits, current will either lead (be capacitive) or lag (be inductive). In the induction field the electric and magnetic components are 90 degrees out of phase, as previously discussed. Consequently, *no* power is dissipated by the induction field. Any power delivered to this field during one portion of a cycle is returned during another portion.

The electric and magnetic components of the radiation field are *in phase* and power is therefore dissipated. The power, which is radiated by the antenna to form the familiar radiation patterns, is comparable to the power dissipated by the resistance of a practical parallel LC (tank) circuit. A tank circuit contains both inductive and capacitive reactances, however at resonance these reactances are equal and opposite and therefore cancel. There is no net reactance and the circuit is resistive.

This is how it is with antennas. Whilst they contain both reactances, at resonance, these reactances cancel and the antenna is resistive. A resistive antenna dissipates/radiates *all* of the power delivered to it.

The value of resistance that would dissipate the same power that the antenna radiates is called radiation resistance. Since a relationship exists between the power dissipated by the antenna and the antenna current, radiation resistance can be mathematically defined as the ratio of total power dissipated to the square of the effective value of antenna current, or:

$$R = P/I^2$$

where:

R = radiation resistance in Ohms

I = effective value of antenna current at the feed point in amperes

P = total power radiated from the antenna length

The radiation resistance varies with an antenna's length and its height above ground.

For a half-wave antenna, the radiation resistance measured at the current maximum (centre of the antenna) is approximately 73 Ohms. ⇨

TECHNICALLY • Speaking •

For a quarter-wave antenna, the radiation resistance measured at its current maximum is approximately 36.6 Ohms. These are free-space values; that is, the values of radiation resistance which would exist if the antenna were completely isolated so that its radiation pattern would be unobstructed. For practical antenna installations, the height of the antenna affects radiation resistance.

The feedpoint impedance is the impedance on the antenna at the point where the feedline is connected. It is thought by many that feedpoint impedance and radiation resistance are one and the same. They are not. The feedpoint impedance is the ratio of E/I at the point where the feedline is connected. This *may* be almost the same as the radiation resistance.

The radiation resistance of a dipole is 73 Ohms irrespective of whether it is fed at the end or the centre. If a dipole (presume a half-wave) is fed at the centre, its feedpoint impedance is also 73 Ohms. However, if a dipole is fed at one end the feedpoint impedance is somewhere around 2500 Ohms.

We must think of the ground under an antenna as if it were a mirror. Sometimes a perfect mirror, sometimes a poor mirror — but always a mirror for electromagnetic waves leaving the antenna. Think of the radiation as visible light, and think of the ground beneath as a true mirror — this is as it is — we just can't 'see' the frequency of radio waves.

Changes in radiation resistance occur because of ground reflections which intercept the antenna and alter the amount of antenna current flowing. Depending on their phase, the reflected waves may increase antenna current or decrease it. The phase of the reflected waves arriving at the antenna, in turn, is a function of antenna height and orientation.

At some antenna heights, it is possible for a reflected wave to induce antenna currents in phase with transmitter current so that total antenna current increases. At other antenna heights, the two currents may be 180 degrees out of phase so that total antenna current is less than if no ground reflection occurred.

With a given input power, if antenna current increases, the effect is as if radiation resistance decreases. Similarly, if the antenna height is such that as the total antenna current decreases, the radiation resistance is increased.

The actual change in radiation resistance of half-wave (vertical and horizontal) antennas at various heights above ground is shown in **Figure 4**.

As you can see from Figure 4, the radiation resistance of the horizontal antenna rises steadily to a maximum value of 90 Ohms at a height of about three eighths of a wavelength. Then the radiation resistance falls steadily to 58 Ohms at a height of about five-eights wavelengths.

The resistance then continues to rise and fall around an average value of 73 Ohms, which is the free-space value. As the height is increased, the amount of variation keeps decreasing.

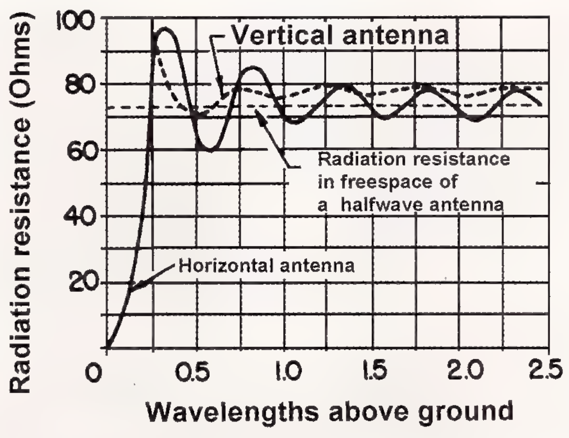

Figure 4. - Radiation resistance versus height

The variation in radiation resistance of a vertical antenna is much less than that of the horizontal antenna. The radiation resistance is a maximum value of 100 Ohms when the centre of the antenna is a quarter wavelength above ground. The value falls steadily to a minimum value of 70 Ohms at a height of a half wavelength above ground. The value then rises and falls by several Ohms about an average value slightly above the free-space value of a horizontal half-wave antenna.

Since antenna current is affected by antenna height, the field intensity produced by a given antenna also changes. Generally, as the radiation resistance is reduced, the field intensity increases; whereas an increase in radiation resistance produces a drop in radiated field intensity.

Antenna Impedance

Since there is energy stored in the induction field about the antenna there is reactive inductance and capacitance components evident. *To store and return is to be reactive. To dissipate or radiate is to be resistive.*

The value of these reactances and the value of the radiation resistance will affect the value of current flow in the antenna. The combination of a reactive and a resistive opposition renders some impedance value for the antenna. This antenna impedance is similar to the characteristic impedance of a transmission line, and is called the antenna input impedance or feedpoint impedance.

Any antenna at resonance presents a specific impedance at every point along its length. Impedance is the ratio of voltage to current; **Z=E/I**. If you look at the current and voltage distributions on an antenna, as shown in *Part 5* of this series last month, you will see that the ratio E/I varies from one point on an antenna to the next.

As previously mentioned, the impedance at the centre of a half-wave antenna is approximately 73 Ohms, whereas the high impedance points at the ends are approximately 2500 Ohms. The voltage and current distribution along an antenna in free space depends upon whether it is or is not resonant at the applied frequency. Since it is impossible to completely isolate an antenna from ground, surrounding objects, and so on, the voltage and current are changed by the inductive and capacitive effects introduced. This, in turn, changes the impedance values along the length of the antenna and must be considered when determining the method of coupling power to the antenna.

An impedance that contains resistance and reactance is called a **complex impedance** and can be described by the expression

$$Z = R \pm jX$$

in which **R** represents total antenna resistance (which is composed of other individual resistances to be discussed later). The reactive component (jX) has a value if the antenna is not resonant.

The half-wave antenna is the shortest resonant length of antenna (or a quarter-wave against ground). However, antennas which are two or more half-wavelengths may be resonant. Such antennas are said to operate on *harmonics*.

Figure 5 shows the a graph of the input resistance (feedpoint impedance) of centre-fed antennas for various wavelengths.

Resistance values for thin and thick antennas are plotted so that the effect of the diameter of the radiating element can be seen. The companion diagram, **Figure 6**, shows that reactance is plotted as a function of wavelength. The graphs show that the antenna may be either inductive or capacitive depending on its length, and that abrupt changes of impedance occur at multiples of a half -wavelength.

At resonant lengths the antenna has no reactance. In fact this (no reactance) is one definition for resonance. The points in Figure 6 where the reactance curves cross the zero point indicate the resonant lengths of the antenna.

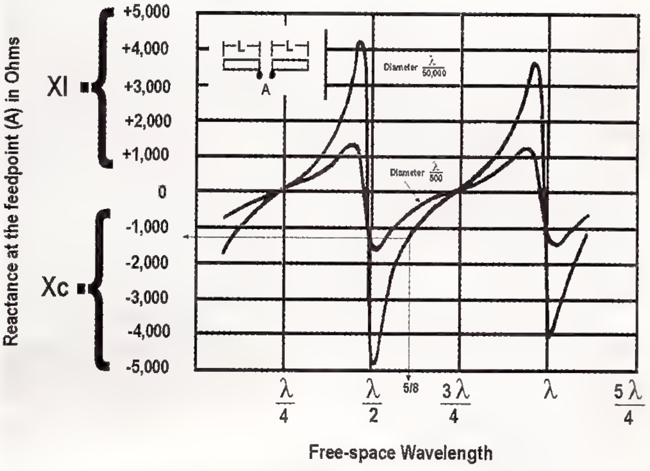

Figure 5. - Reactance versus element length

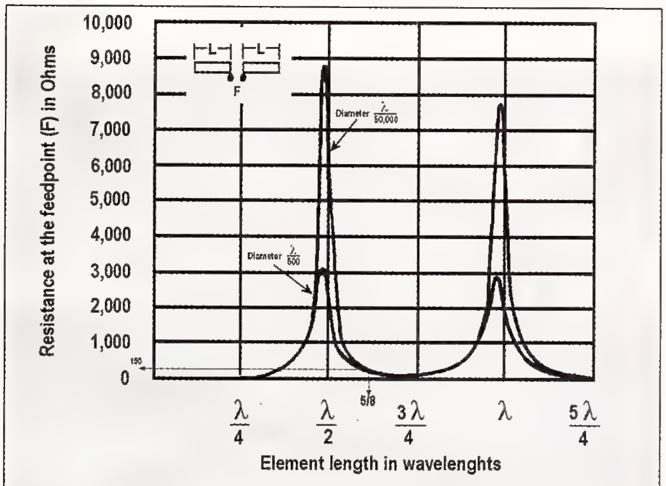

Figure 6. - Resistance versus Element length

Because the curves are plotted in terms of the free-space wavelength, the effect of the reduced velocity of the wave motion along the antenna is shown by the curves. For example, a half-wave antenna element is resonant only when it is less than the free-space half-wavelength. The foreshortening is caused by the increased capacitance associated with the elements.

Figures 5 and 6 may be used to calculate the input impedance of a centre-fed antenna. Suppose we have an antenna of (diameter = λ/50, 000) which is five-eighths of a wavelength. What is the input reactance of the antenna?

Since the antenna is five-eights of a wavelength it is not resonant. It will have reactance. Its impedance will contain both resistance and reactance. The resistance is located on the curve in Figure 5, halfway between λ/2 and 3λ /4, and is 5λ /8.

The resistance in Figure 5 is approximately 150 Ohms. Similarly, the reactance can be found on the diagram in Figure 6 at the 5λ/8 point. The graph shows the reactance to be capacitive with a value of approximately 1100 Ohms.

The input impedance at the 5λ/8 point is therefore:

$$Z = 150 - j1,100$$

This antenna needs to be brought to resonance. This could be done by adding inductance to cancel out the capacitive reactance and making the antenna resonant as a 3/4λ. This is why 5/8 wave antennas have a loading coil usually at their base though of course it could be anywhere along its length.

The current flowing in an antenna is opposed by three kinds of resistance. With the antenna considered as a radiator of energy, the power dissipated in the form of radiation can be considered an I^2**Rr** loss where **Rr** is the radiation resistance. As a conductor, the antenna dissipates power in the form of heat. This power is an I^2**Ro** loss where **Ro** is the ohmic resistance of the antenna. Another I^2**R** loss (called dielectric loss) is due to leakage resistance of dielectric elements, such as insulators. This value of resistance is usually included in the ohmic resistance **Ro**. The energy dissipated by the radiation resistance is the useful part of the total power dissipated.

Unless the ground behaves as a nearly perfect conductor, the amplitude of the ground-reflected wave will be much less than the amplitude of the wave before reflection. A portion of the wave is absorbed by the ground and constitutes ground losses.

Ground Material	**Relative Conductivity**
Sea Water	4,500
Flat, rich soil	15
Average flat soil	7
Fresh water lakes	6
Rocky hills	2
Dry, sandy, flat soil	2
City residential area	2
City industrial area	1

Table 1. Relative conductivity of various surfaces

Table 1 shows that salt water is the best conducting (reflecting) natural surface. Concrete or dry sandy soil, on the other hand, results in substantial ground losses by comparison.

A method frequently used to increase the conductivity of a poor ground under an antenna is through the use of a *ground screen*. This screen consists of a fairly large area of metal mesh laid on or directly beneath the surface of the ground under the antenna.. In practice, the screen extends about half a wavelength in all directions, although larger surfaces produce better conductivity. Two advantages in using ground screens is a reduction in ground losses and more accurate predictions of radiation patterns.

The input impedance of an antenna is affected by the presence of nearby conductors (for example: rigging on ships, guy wires, etc). Any object that can be affected by the induction field will distort the field, and also the antenna current and voltage distribution. Therefore, the input impedance of the antenna will be changed, and necessary corrections must be made to provide the best match to the antenna. Because this effect is almost always difficult if not impossible to calculate, corrections are usually made using the trial-and-error method.

The Marconi Antenna

The difference between the Marconi antenna and the Hertz (dipole) antenna is that the Marconi type requires a conducting path to ground, and the Hertz type does not. The Marconi antenna is a quarter-wave grounded antenna or any *odd* multiple of a quarter wavelength.

⇨

TECHNICALLY • Speaking •

A Marconi antenna is shown in **Figure 7**. The transmitter is connected between the antenna and ground. The actual length of the antenna is one-quarter of a wavelength. However, this type of antenna, by virtue of its connection to ground, uses the ground as the other quarter wavelength, making the antenna electrically a half-wavelength. This is so because the earth is considered to be a good conductor. In fact, there is a reflection from the earth which is equivalent to the reflection that would be realised if another quarter-wave section were used.

By use of the Marconi antenna, which is a quarter-wave in actual physical length, half-wave operation may be obtained. All of the voltage, current, and impedance relationships characteristic of a half-wave antenna will also exist in this antenna. The only exception to this is the input impedance which is approximately 36.6Ω

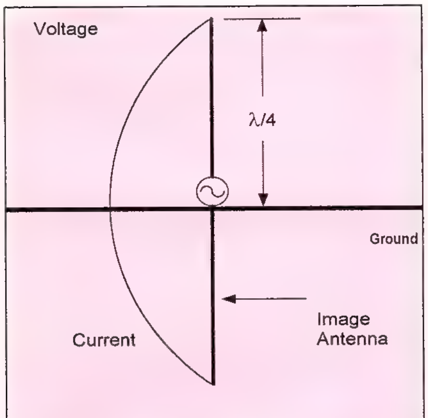

Figure 7. - The Marconi Antenna

One of the most frequent uses for the Marconi antenna is in portable equipment. In steel-hulled vessels, the additional quarter wavelength required for half-wave operation is usually provided by the ship' s hull.

The effective current in the Marconi grounded antenna is maximum at the base and minimum at the top, while voltage is minimum at the bottom and maximum at the top. When the conductivity of the soil in which the Marconi antenna is supported is very low, the reflected wave from the ground may be greatly attenuated. The reflection from the ground is made in much the same way as a voltage wavefront is reflected from a resonant transmission line. A great attenuation of the reflected signal is highly undesirable.

When an actual ground connection cannot be used because of the high resistance of the soil, or if a large buried ground screen is impractical, a counterpoise may replace the usual direct ground connection. The counterpoise consists of a structure made of wire erected a short distance above the ground and insulated from the ground. The size of the counterpoise should be at least equal to and preferably larger than the size of the antenna.

The counterpoise and the surface of the ground form a large capacitor. Due to this capacitance, antenna current is collected in the form of charge and discharge currents. The end of the antenna normally connected to ground is connected through the large capacitance formed by the counterpoise. If the counterpoise is not well insulated from ground, the effect is much the same as that of a leaky capacitor with a resultant loss greater than if no counterpoise is used.

Join us again next month as we continue our exploration of Antennas and Transmission Lines!

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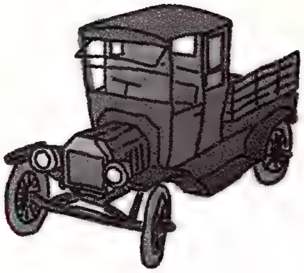

By Roger Johnson, VK5ZKP E-mail vintage@radiomag.com

Radio collecting...

turn your hobby into a business!

Writing for a new magazine will presumably introduce a body of new readers who had never considered vintage radio as a hobby. This article attempts to explain the joys, pitfalls and how it all works.

Why vintage radio?

The short answer is 'why not'!!

There is no logic at all to a collection of *any* description. Why would someone want to obtain not only one item of obsolete equipment, but a whole series of outdated examples sometimes in a state of disrepair, and in any case with limited application?

Answer: for the sheer pleasure and fascination — *that's* why.

Old radios still work on today's AM band. The analogue transmission is not dead and buried yet, and consumer resistance to digital transmission will ensure that it is around for long enough for us not to worry about in the foreseeable future. Vintage radios are collected for their technological features, as part of our social history and as items with intrinsic style and beauty.

Some of the most desirable collector items are now the coloured bakelite radios of the immediate pre-war and post-war period. The rarer and highly desirable specimens now fetch up to $5000!

Getting started

If you have never thought about radio collecting as a hobby, here are some pointers.

Radio collecting is now an international hobby, and there are some people with serious money to spend. Whilst 25 years ago it was possible to literally pick them off the rubbish tip, or to see them in junk shops and at auction marts for $20 or $30, the chances of that happening today are so remote that we might as well eliminate those sources of supply.

For all intents and purposes, you can expect to pay market prices. As you become more experienced as a collector, there is always the thrill of the chase, and perhaps a bargain will present itself. The emphasis is that it is the exception rather than the rule.

The remainder of this article is to explain the pros and cons of what to collect, and some traps to avoid.

What to collect...

It is not the intention of this article to dictate. It is to point out the pros and cons.

Probably the cheapest category to get started, and one where it is pretty difficult to make an error of judgement, would be to collect the plastic mantle radios of the mid-1950s. Experienced collectors will probably throw their hands up in horror, but we all have to get started somewhere, and my prediction is that radios of this type will appreciate in value.

These radios have plastic cases. Most often they are cream, but there were coloured ones made. Do not buy ones that are warped or cracked — unless you can get them for $10 or so as a source of spare parts. You can expect to pay in second hand shops $50 to $100 for good 'clean' radios. Don't pay any more. If you are fortunate enough to be able to get to a local weekly auction mart, pay from $40 to $70. These radios are often seen at the local 'trash and treasure' markets for around the same prices as the auctions — possibly cheaper.

Examples of the type can be seen below in **Figure 1**.

Why these radios? They are fairly easy to fix, and they work quite well, especially the ones with ferrite rod antennas. Not only that, the components were fairly well standardised during those years, and a derelict chassis is a cheap and reliable source of replacement parts such as speakers, transformers etc should they be required. The HMV 'Little Nipper' in Figure 1 came in

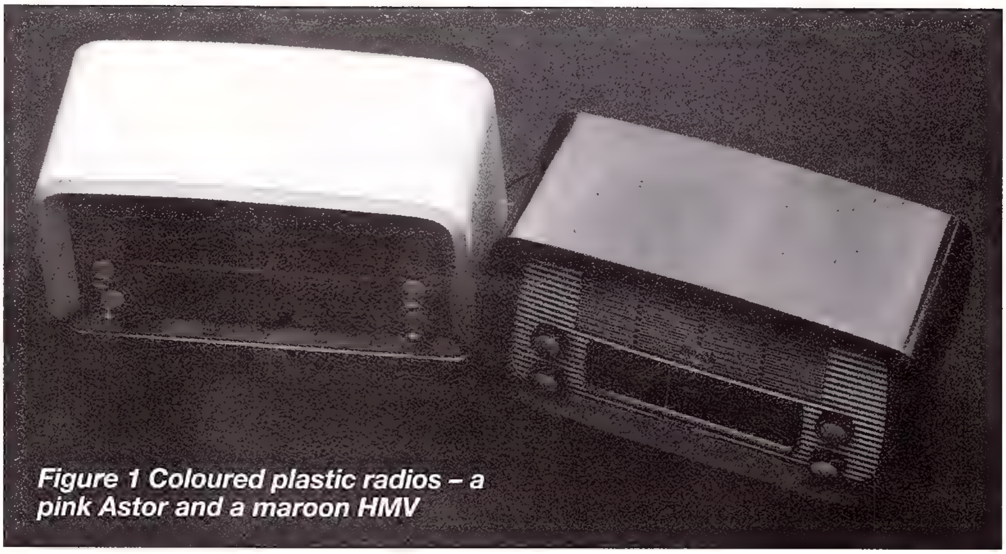

Figure 1 Coloured plastic radios – a pink Astor and a maroon HMV

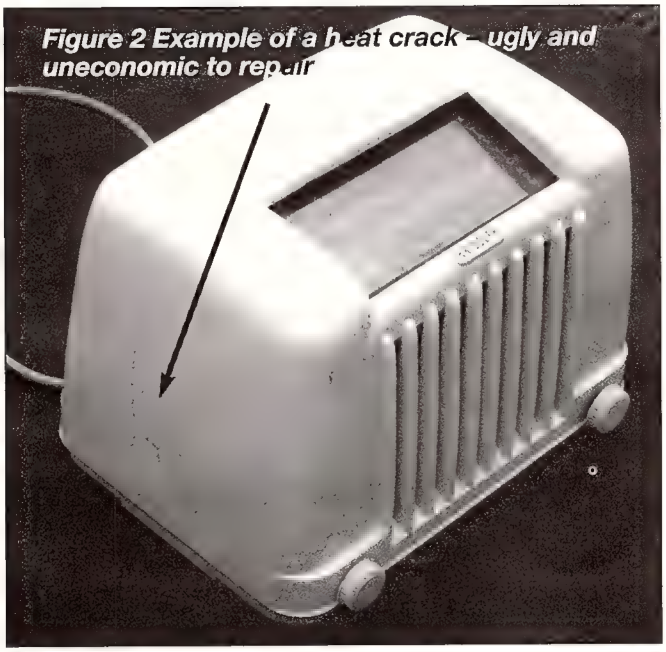

Figure 2 Example of a heat crack – ugly and uneconomic to repair

a variety of colours. As a new collector, try aiming for the entire colour range. Astor and AWA Radiola also produced series of coloured plastics, and a complete collection of those alone would be quite an acceptable collection, and enough to keep you out of the pubs!

Post-war bakelite mantles

Next in the price range are the post-war bakelite mantles. Now, these came in various colours — but be warned. The vast majority of them were brown for a very good reason… it was the strongest.

Next most numerous category was cream, which tended to 'heat crack'. This means that an ugly crack developed in the region of the hottest components, the power tube and the rectifier. The crack (**Figure 2**) is usually one to two inches long, and gets filled with dirt, and is uneconomic to repair.

The third in this category are the coloured bakelites. These came in pink, maroon, mustard, red, yellow, blue and green in solid colours, and some came in the solid colour with a contrasting fleck or swirl highlight.

The coloured bakelites are highly sought-after, and some very fancy prices ($600 to $1000) can be asked. However, the coloured bakelites can crack, break and fade. It is suggested that this category should be left until you have a bit of experience under your belt. (**Figure 4**)

For brown bakelites there are many many varieties, and you will not get tired seeking them out. Astor, AWA Radiola, Healing, Philips, Mullard, Airzone, Operatic, Hotpoint Bandmaster, STC, Tasma are just a few names that come to mind. Expect to pay $100 to $200 depending on style, condition, (and whether or not they work) from antique shops, and about $50 to $100 at the auction and flea marts for non-workers. For the new collector, don't buy them with cracked dial glasses or missing knobs. Pay the little bit extra for complete specimens. Examples are shown in **Figure 3**.

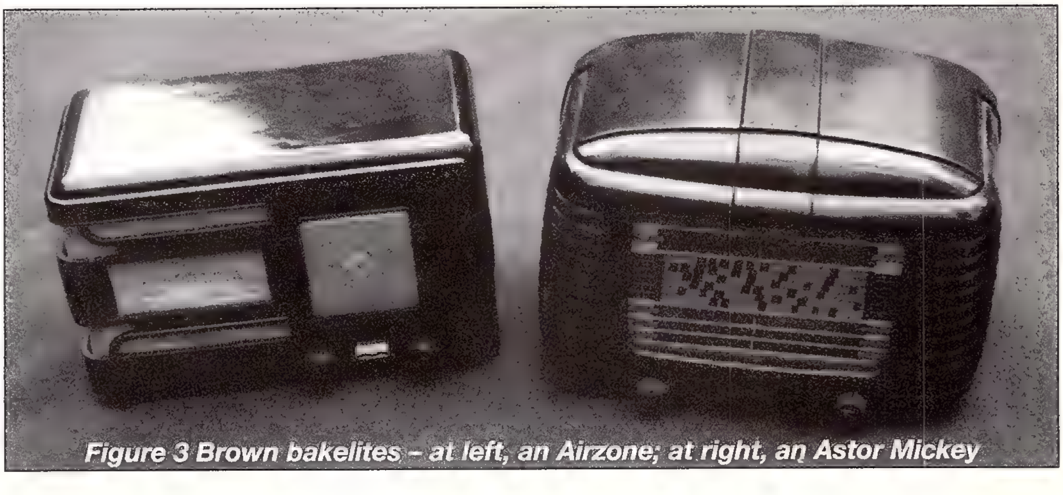

Figure 3 Brown bakelites – at left, an Airzone; at right, an Astor Mickey

The advantage with these radios is that again they are reasonably easy to repair, they work quite well and use either octal valves or 7-pin miniature tubes or, in some cases, a combination of both.

Pre-War radios

Whilst there are no hard and fast rules about categorising radios, it can be fairly said that pre-war radios up 'til about 1937 tended to have timber cabinets. Bakelite cabinets were slowly being introduced. After WW2, there were a couple of manufacturers offering timber cabinets in the period 1946/7/8, by which time practically all mantle radios were only offered in bakelite, and subsequently plastic cabinets.

So, collecting pre-war radios in timber cabinets is another field of collecting. The pre-war years were the hey day of the 'console' radio. Again, there are no hard and fast rules, but in the immediate post-war period, most manufacturers offered console radios in their product range, but as the post-war years progressed, the mantle radio was the stock in trade, and the numbers of console radios diminished.

The decade of the 1930s is without doubt the most fascinating decade to collect. Radios progressed form all triode TRFs in 1930 to very very good performing five-valve superhets in about four years. Indeed, it has been argued that apart from miniaturisation, there was no technical advancement in AM domestic radio design from 1935 to 1960!

The decade of the 1930s should really be divided into three or perhaps four sub categories. 1930 models were often all triode. 1931/2/3 saw the introduction of the all-electric console sets with screed grid RF tubes. Firstly they were TRFs, and by around 1932 the 'autodyne' superhet was well and truly established. The electrodynamic field coil speaker, when combined with a single-ended power pentode such as a type 47 or A A, resulted in adequate audio quality. These radios when restored, can perform to an acceptable standard, and make quite a decorative conversation piece.

Radios of the 1933/4/5 period saw the transition to valves with 6.3 volt filaments. This period saw the introduction of the frequency converter, notably the type 6A7, and the duo-diode types 75 (DD-triode) and 6B7 and bIS (DD-pentodes). These tubes enabled diode detection and AGC, thereby setting the format for tube radios until the end of the valve era some 30 years hence.

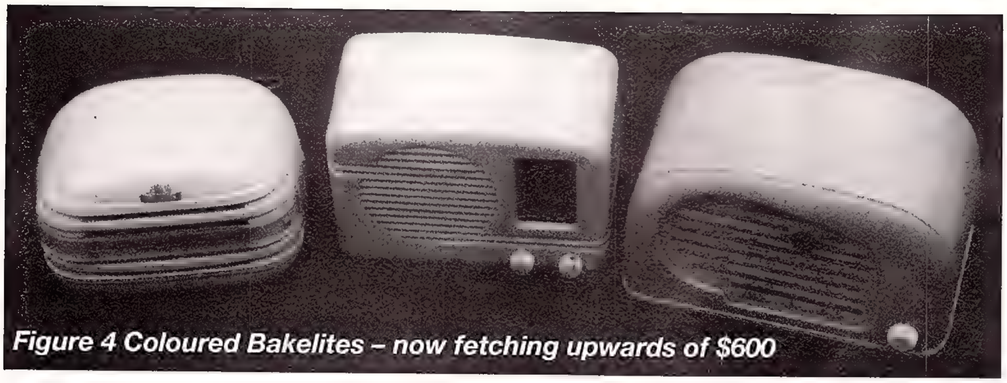
Figure 4 Coloured Bakelites – now fetching upwards of $600

The more expensive console radios of the early 1930s came in arguably the most attractive cabinets ever made. Many of them had turned and fluted legs, with routed cross-braces, whilst the cabinets proper were veneered in exotic timbers, and suitably adorned with scrolling and rosettes.

Such console radios are quite desirable. However, the price is very much dictated by condition. To have these cabinets professionally restored, you can pay up to $500, and they *should* be finished in nitro-cellulose lacquer, not polyurethane. The more expensive ones could have eight tubes, and push-pull type 45 output bottles. Depending on condition, expect to pay from $199 to $800 for one 'as found'. The amount of cabinet restoration and visual appeal will largely determine the price.

Although lacking AGC, and in many instances with a fairly crude volume control, these sets were quite selective and sensitive, and with push-pull 45s and enough audio to be very uncomfortable! The chassis will often contain a couple of each type of 4A and 35, and whatever audio the designers incorporated. Fortunately, those tube types are easy enough to obtain.

The third category of radio in the 1930s would have to be the 1938/9/40 period. The ever-popular 5-valve dual wave superhet, in a console cabinet. Radios of this era were good performers. In my humble opinion, as far as design and performance went, the AWA Radiola won hands down. They were brilliant performers. The design of their coils and high performance IFTs were second to none.

A so-so console can be had for $50 to $150 from the auctions, depending once again on condition and visual appeal. A timber mantle will cost at least twice that amount.

The 1930s was a great era for battery radios as well. Some of the designs of the middle period had eight tubes, which included separate oscillator, sometimes two IF stages, and invariably class B push-pull type 30 output valves. Constructing a regulated power supply for a power source is not a difficult task, and it is a fascination all of its own bringing these sets back to life.

The 1920s

Radios of this decade are for the true believers, and are collected for their technical fascination rather than visual appeal. They are the simplest of circuits, and often you needed three hands to tune them. The 'Three-dialler' was adjusted to optimum performance each time a station was selected. Often, the stability would change from station to station. Stability was controlled by one or two filament rheostats, which needed to be adjusted each time the thing was tuned.

Valves for these radios are expensive — try $A50 *each* for 201As. Yes, exchange rate is not the only cost. There is the freight cost, plus the cost of the bank draft or whatever.

So, when bidding or negotiating a radio of this type, always take into account whether it has valves. A restored example with tubes may change hands from $500 to $700. 'As found', straight from the chook shed, expect to pay $100 to $200 depending on brand name and condition.

What to collect...

Having said all that, your collection could take many forms. You could collect one particular brand, one particular style, era, just battery sets, home-brew radios of the 1920s, all-electric triode radios of the early '30s, not to mention horn speakers, valves magazines... the list goes on and on. Incidentally, a working horn speaker is going to cost a minimum of $300.

Where to collect

As previously mentioned, these days expect to pay market prices. However, it pays to let people know you are a radio collector. Many collectors who have been collecting radios for a long time will tell you of social gatherings where someone happens to ask "you collect old radios? There is one in the shed you can have if you like..."!!

Flea markets, local trash and treasure and auction markets are the cheapest. Antique shops and second-hand shops are more expensive, but you can often strike a deal, but probably the best guide for price is ebay (**http://www.ebay.com**) and, more particularly, the Australian market, **http://www.ebay.com.au** Just search under 'radio' and you will soon get the idea. If in doubt *always ask* the vendor.

So, there you have it. There are going to be exceptions to the rule, but the above is a guide to what to expect. Have fun! **R**

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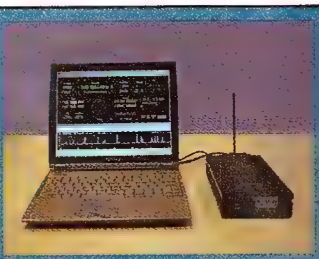
Which WiNRADiO products are on your wish list this year?

External Receivers

Portable computer controlled VHF/UHF, HF/VHF/UHF receivers. Four models available:

- •WR-1550e (150 kHz to 1.5 GHz)
- •WR-3150e (150 kHz to 1.5 GHz)
- •WR-3500e (150 kHz to 2.6 GHz)
- •WR-3700e (150 kHz to 4.0 GHz)

(Computer not included, different antenna supplied. US version excludes cellular frequencies 825-849 & 869-894 MHz)

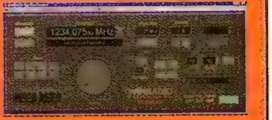


Internal Receivers

Stationary, discreet, compact card receiver. Four models available:

- •WR-1550i
- •WR-3150i-DSP
- •WR-3500i-DSP
- •WR-3700i-DSP

(US version excludes cellular frequencies 825-849 & 869-894 MHz).



Universal FSK Decoder

With several powerful analysis tools, the FSK decoder makes it easily possible to determine transmission characteristics of an unknown signal automatically using 1000, 1500 or 3000 Series WiNRADiO receivers.

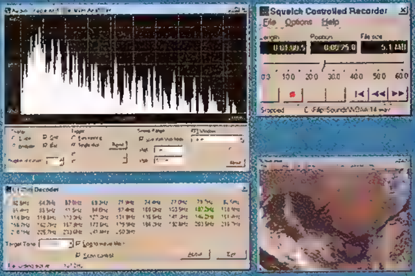
WiNRADiO for Mac

Introducing our Apple Macintosh support for the popular external WiNRADiO WR-1550e receiver. Frequency range 150 kHz to 1.5 GHz. *(US version excludes cellular frequencies 825-849 & 869-894 MHz)*

(Computer not included)

Digital Suite

The WiNRADiO Digital Suite expands the power of your WiNRADiO radio receiver with numerous digital processing facilities, including weather fax, ACARS, packet radio, audio oscilloscope and spectrum analyzer, squelch-controlled recording, and many others.

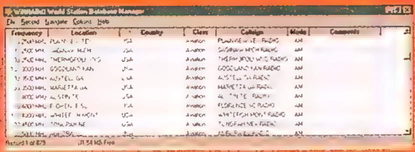


Portable Power Source

With rechargeable batteries, intelligent charging circuitry and a level-test switch, this option provides portability to external WiNRADiO 1000, 1500 and 3000 series models.

Database Manager

Access and maintain large selections of frequencies. Includes a database of 300,000 world-wide frequencies.

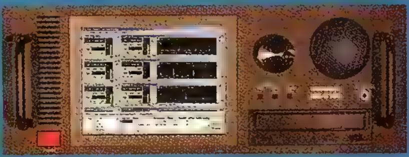
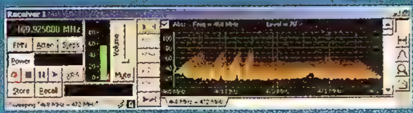


PCMCIA Adaptor

Connect a WiNRADiO receiver to a laptop computer with a standard PC Card socket.

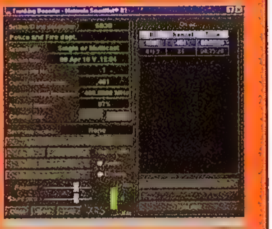
VHF/UHF Multichannel Monitoring System

The MS-8108 provides an elegant, fully integrated solution. Designed to monitor radio frequencies on eight channels simultaneously, record digitized signals for later retrieval, and perform automatic decisions based on the received signals.

Trunking Option

Join the trunked radio revolution with this option and a WiNRADiO radio receiver! The major trunking modes are included: Motorola SmartNet & MPT 1327.



AX-31B Antenna

The AX-31B antenna is a compact, indoor VHF/UHF directional antenna with a built-in amplifier. Suitable for any radio receiver!

WiNRADiO Telephone Control Interface

Facilitates remote control of external WiNRADiO receivers using a standard land or cell phone line. The user controls the receiver remotely using DTMF (touch-tone) commands, which are confirmed using a digitized voice.

For more products and further information please visit:

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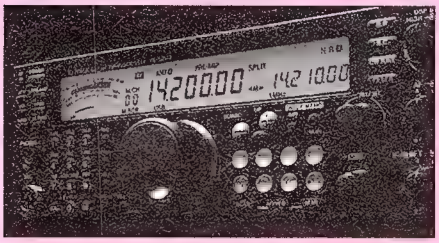
info@winradio.com

modifications

By Greg Towells, VK2GJT
E-mail mods@radiomag.com

I'm back again — new magazine but with lots of familiar names all around... so really it's not that 'new'. I've got heaps of mods of all sorts for a virtual mountain of radio and other related equipment.

Still, there's no way I have a monopoly on this side of the world's radio modifications, so how about it?? If you have some interesting mods, what about sharing them here in this column? The E-mail address is around the top somewhere. So, on with the real reason you are here...



Kenwood TS-570 memory problems

Some TS-570s have started exhibiting memory problems after a few months of faultless operation. What's happened is after switching off, all the memories are lost, as well as the value for the IF filter bandwidth (menu item 46) which is normally held even if you reset the transceiver!

Immediate thoughts may blame the backup battery for this somehow, however it appears to be a 'reset IC' that is causing the problem. If your radio is still under warranty, then this fix will be covered but if it is well out, then it can be done yourself. It is a major trip into the innards of your radio, and your wallet if you have to pay for the fix. If you are confident enough to do it yourself, then read on...

Apparently, the microprocessor must reset correctly or the battery will drain quickly, many within six months. Therefore you must follow these instructions, as odd as they may seem.

Before you begin, you need the radio on a nonconductive surface, a Phillips screwdriver and a CR2032 battery. You also need the radio's power supply hooked up, but leave it off for disassembly.

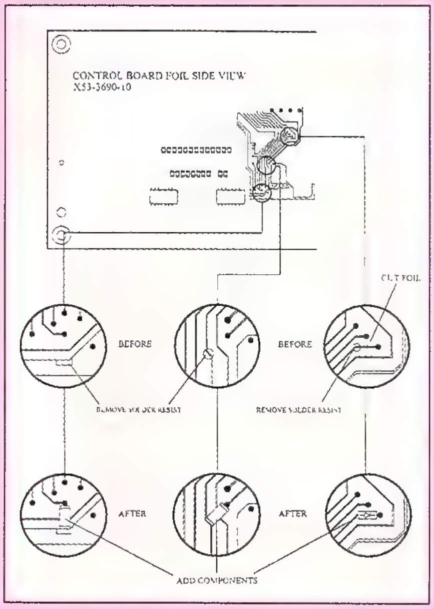
Have the radio hooked up to 12V. Turn the radio off, but leave the supply switched on. Remove the four screws from the top of the case. Remove the four screws on the side and lift the top free. Turn the radio over and remove the four screws from the bottom that holds the entire case on. Don't bother with the service panel. Turn the radio right side up and notice there are four more screws (two on each side) that hold the front panel on. Two of these are in slots, and two are in holes. Remove all four of them. BE CAREFUL. The panel is attached with several cables and ripping them loose is probably not a good idea.

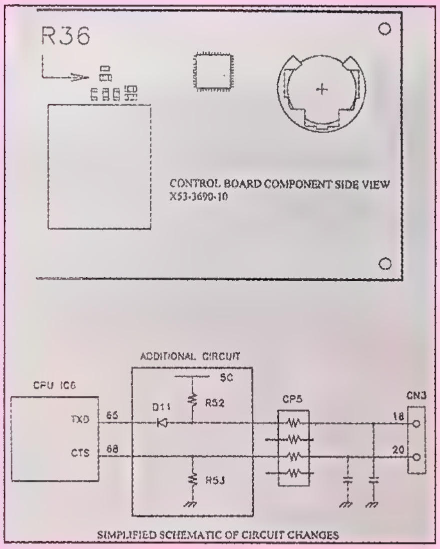
Carefully separate the panel from the radio chassis. Note the battery in the little holder. The positive side of the battery is facing out. The battery holder is spring-loaded; you don't need to open it. Just gently push the battery and slide it upwards, freeing it of the holder and replace it with the new battery (remember the positive end faces you).

Once the battery is removed from its socket, wait 20 seconds or more before going to the next step. Connect your power supply to the transceiver and switch it on. The transceiver should turn on by itself. Then install the original or replacement battery. Turn off the transceiver from the front panel power switch. Reset the transceiver by holding A=B key depressed while turning on the transceiver from the front panel power switch.

Reseat the panel, lining up the screw holes and replace the screws. If you want, at this point, turn the radio on and off again. Replace the covers. Remember, don't put the side screws in until the top and bottom are in place.

That's it! After doing this, the problem shouldn't recur. Just be careful when you attempt this. Lots of things can go wrong. The case is very tight-fitting, so don't drop the pieces and bend them out of shape or you will be sorry. Good luck!




R36
CONTROL BOARD COMPONENT SIDE VIEW
X53-3690-10
ADDITIONAL CIRCUIT
CPU IC6
TXD
CTS
65
68
SC
D11
R52
R53
CP5
CN3
18
20
SIMPLIFIED SCHEMATIC OF CIRCUIT CHANGES

If your backup battery does go flat again in a short time, then you will have to perform the following bit of surgery to correct the problem for good.

Apparently, the cause of the problem is that, when the transceiver is turned off, there is a momentary increase in back-up battery current drain. In addition, if a personal computer is connected to the transceiver, excessive back-up battery current drain can occur when the transceiver is turned off. The following circuit changes will eliminate the increased current drain.

Be aware that this modification requires soldering equipment rated for CMOS-type circuits. It also requires familiarity with surface mount soldering techniques. If you do not have the proper equipment or knowledge do not attempt this modification yourself!

You will need the following parts: First is two 10k ohm resistors, one 1SS355 diode (or MA110) and one 470 ohm resistor. The 470 ohm resistor is only required for S/N 903xxxxx and higher.

Read through this a few times before you go ahead with the mod.

Disconnect the power cable and remove the covers of the transceiver. Access the foil side of control board X53-3690-11. Remove the solder resist from three foil locations. Cut one foil trace. Do not cut too deep.

Add the two 10K ohm resistors and one diode. On the component side of the Control board, replace R36 with a 470 ohm resistor if a 10K ohm resistor is installed. (This must be done from S/N 903xxxxx and higher).

Remove the lithium battery and measure its voltage. If it measures 2.8 V or less, you need to replace the battery with a new one.

Uniden BC-245XLT light mod

Before starting, I'd like to say that this mod was written for, and works on, the BC-235XLT. The mod is here as I have heard advice that it *may* work for the 245XLT. It's at your risk, and I'd suggest checking out the insides against these details before going ahead.

This mod will enable you to turn on your backlight via a separate switch and to leave it on as long as you desire. No longer do you have to keep hitting the light button all the time to see who's talking at night.

As for the extra battery drain, it is not as bad as you might think. Checks on modded radios show that the radio pulls between 70 to 85 mA while on, squelched and no signal present. The variance depends on if you're trunking or not, scanning or manual, the frequency band you're on, and so on. With the light on, the radio pulls an additional 20 mA (approx). So you can see, even leaving the light on *all* the time will not severely cut back on battery life. However if you are able to plug the scanner in, it would be best, especially if you leave it on at night while you sleep.

You will need the following items:

A low wattage soldering iron with a tiny tip, as you will be soldering to surface mount devices!

Very small gauge wire, about 30cm and cut in two pieces. Select a size suitable for soldering to SMDs! You cannot put any undue stress on these components.

Lastly, you'll need to locate a SPST switch, not a momentary switch either. Your choice of switch depends on the way you want to mount it. As you'll read, there are two suggested mounting situations.

The first is to drill a hole in the top of the radio just behind the earphone jack. Obviously, before doing this, you should take the radio apart so you can see what you're doing before drilling and to see if you can fit a switch into this small void area. A micro-mini toggle switch might be the go for a small area here. Also note there is a metal plate underneath the plastic top that you'll need to drill through. This will be evident once the radio is apart.

The second switch option involves no drilling — in fact, if you go this way you can remove the whole mod with no evidence! You will need to locate a small enough switch to fit inside the battery pack area.

There are a couple of small drawbacks to the mod. The backlight will still continue to shine even after the low battery indicator has shut the radio off. If left this way, the batteries will continue discharge to nothing. This is far from good for the batteries! However, this will not happen (of course) if left on the charger. Please note, though, the light *does* go off when the scanner is turned off by the power switch.

And the other drawback is that, naturally, depending upon your preference and the size/type of switch you choose to use, it may be necessary to drill a hole in the case.

Other things you'll want to know: the regular light button will function as normal, as long as your added switch is not turned on. The keypad lockout button functions as normal regardless of the added switch position. As usual, this mod will more than likely void your warranty.

A final warning before proceeding. You will be required to solder to a surface mount transistor. If you do not have experience in messing with SMDs or the necessary equipment then I suggest you do not proceed or let some one who has the experience do it for you.

Again, if for some reason your scanner has a different layout of the identifying components than as to what I describe below then don't proceed. Guessing will only get you in trouble.

The mod works like this. The switch will be hooked up to a switching transistor inside the radio that is normally responsible for acting like an on/off switch for current to the backlight. You will in effect be bypassing the current around this transistor, like a jumper. This transistor normally receives a timed signal from the CPU to allow current to flow to energise the backlight. You will not be hooking up to the CPU but to the transistor.

So let's get started on the surgery. Start by removing the battery cover, battery pack, antenna, volume and squelch knobs (they pull off), then remove the round nut for the BNC connector, using a small pair of needle nose to grip the slots.

Remove the four black screws holding the back cover on and remove the cover. Don't worry about removing the screws for the belt clip. Remove the top cover as well. With the radio pointing up and the back facing you, remove the first circuit board by carefully grabbing it at the top and bottom and gently rocking it top to bottom. It is held in place by a multi-pin connector on the bottom right side. The pins are held in place only by the physical resistance of the connector, so do not worry about having to release some tab or anything to get this board off. However, do not use anything to pry with and do not use excessive force. This is the only thing holding the board down. Once removed, set this board to the side.

Remove the next board by removing the two silver screws at bottom, the two silver screws in the centre of the metal plate shield and the three silver screws holding the metal shield itself. This board should now come out.

Next, release the two tabs holding the metal shield on, they are on either side of the LCD display. Now turn this circuit board to the left. The component side should be facing you and the LCD display (on the underside) should be facing to the left.

Locate the second largest chip on the board. It is labelled IC202, and may have the numbers D7225GB on it.

(Remember, this was written for the 235XLT. If your machine looks completely different, note the advice above about getting out while the getting's good!) Now, about 5mm from the top right corner of this chip (going to the right) you will see a three-legged black component. This is the transistor you need to hook up to. It is the only three-legged component on this whole left side of the board.

This transistor may have the numbers 64 and 23 on it, and should be easy to identify as this board is not very crowded. There are some smaller resistors and capacitors around it. As for another description as to its location, it's half-way between IC202's top right corner and the screw hole in the circuit board. Remember to have the circuit board facing in the direction as previously described.

With the board still facing the same way you will need to solder one wire to the top left leg of the transistor, then solder the other piece to the single bottom leg. Remember, do not leave the iron on the component for more than a second or you'll wind up burning it up or messing up the soldering pad or trace, which is very easy to do!

Now route your two wires to your switch. Be sure to leave plenty of slack and be really easy about it. Do not pull or tug on at all where its been soldered to the transistor. Be sure to double check the solder job with a magnifying glass. Make sure it is secure... that no cold joints and no bridges exist. Put your radio back together and confirm operation and you are in business.

Let me know if you have any specific Mods queries and I'll do my best to help you. See you again next time!

Would you accept...

An Invitation from NASA to a Shuttle launch

Words and pictures by Tony Hutchison, VK5ZAI

Web site: www.electric-web.org

It was in December last year when a letter with the NASA logo on it arrived in my letter box in rural SA. Opening the letter, I was excited to read:

"Dear family and friends,

"The crew of STS-102 invites you to attend the launch and landing of the next flight of the Space Shuttle Discovery... While Space Shuttle launches and landings are normally covered on TV, we think that they are events best viewed in person (a slight understatement!)...

"For your convenience a self-addressed, postage paid card is included for your reply. Please include the names of every one in your party on your response... We are extremely pleased to extend this invitation to be a part of America's Space Program.

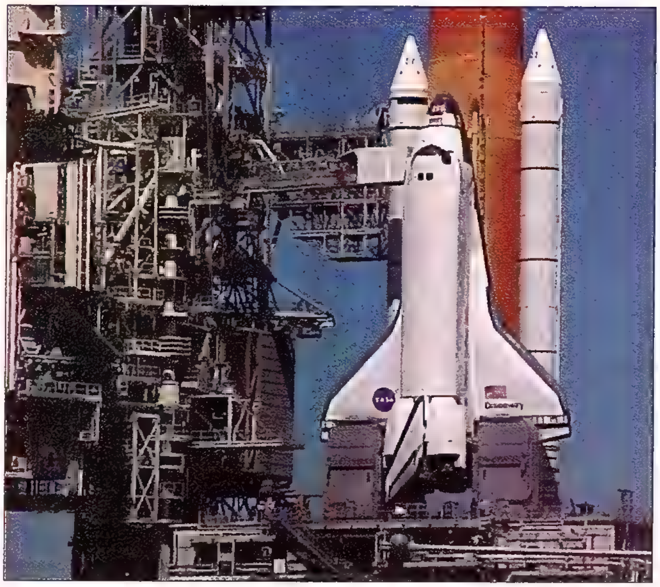
"Sincerely,

Expedition 1 crew
Bill Shepherd, Commander
Yuri Gidzenko, Soyuz Commander
Sergei Krikalev

Expedition 2 Crew
Yury Usachev, Commander
Jim Voss
Susan Helms

STS-102 Crew
Jim Wetherbee, Commander
Andy Thomas
Paul Richards, Jim Kelly

I would have to admit that this invitation was not entirely unexpected. You see, I did the **'telebridge'** links for Andy Thomas as VK5MIR so he could speak to his family while on the old Russian space station 'Mir' in 1998, and currently I am doing the telebridge links for the crew on the ISS. Over dinner with him one night, the possibility of seeing a shuttle launch was mentioned. Needless to say, the invitation was accepted and answered immediately.



Departure day arrives...

We departed Adelaide Airport on February 25, 2001, and went via Melbourne and Sydney direct to Los Angeles, arriving some 24 hours later due to delays within Australia. On the way over I did manage to spend two hours on the flight deck with the crew.

We chose to break the trip in LA, before flying on to Houston via Phoenix. We spent a day in LA, doing the tourist bit taking a five-hour bus tour of Hollywood, Farmers Market, Beverly Hills, Santa Monica and Marina Delray before catching our flight to Houston via Phoenix. Being country born and bred and not a lover of big cities, LA didn't do a lot for us...

We arrived at the George Bush Airport at Houston around 3am(!) and found a Motel close by and managed around four hours sleep. After breakfast I phoned Bruce Paige, KK5DO, the AMSAT Awards Manager, who was expecting us. Bruce is also AMSAT area coordinator for Houston. He picked us up a little later from our motel and proceeded to give us a tour of down town Houston. Houston is the fourth largest city in the US — and is beautiful (this is quite something coming from a person who doesn't normally like cities!) and the friendly attitude of Texans as with everyone we met in the southern states was unbelievable.

After lunch and more sightseeing Bruce found us a motel closer to his home where we had a shower and changed before being picked up again and dining out at a Chinese restaurant with members of the Houston AMSAT group.

We then went back to Bruce's where he suggested that I give a call on UO-14 using my VK call sign to see what might happen. I had *never* heard QRM like it! I managed to work several stations, but there must have been a hundred calling, and all at once!

Next morning Bruce picked us up again and we had lunch with Jerry Brown, K5OE, before being driven 25 miles down to the Ramada Inn close to the Johnson Space Center where we spent the next two nights. After a coffee we said good bye to Bruce and he headed back to the city.

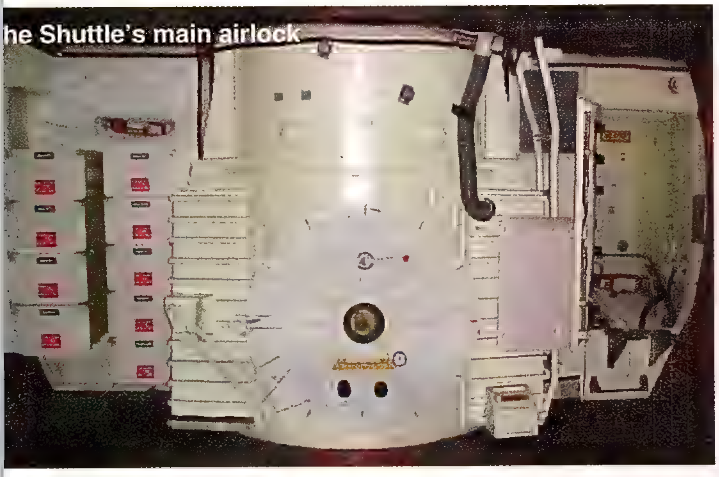
Johnson Space Center... the first time

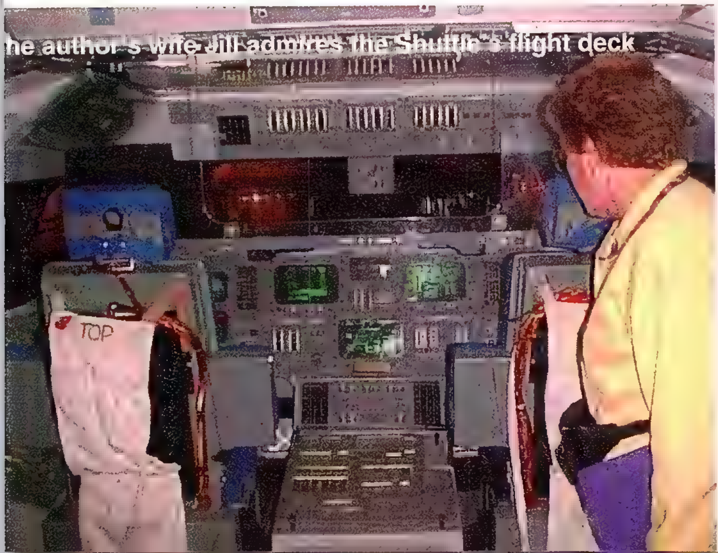
Before we left Australia, Beth Shepherd (Bill "Shep" Shepherd's wife; Shep was still on the ISS) E-mailed me and said to phone her when we got down to JSC to catch up for a few drinks. Seeing we were finally in town I phoned her, and she suggested that we meet that evening at "Boondoggles", a favourite meeting place for astronauts.

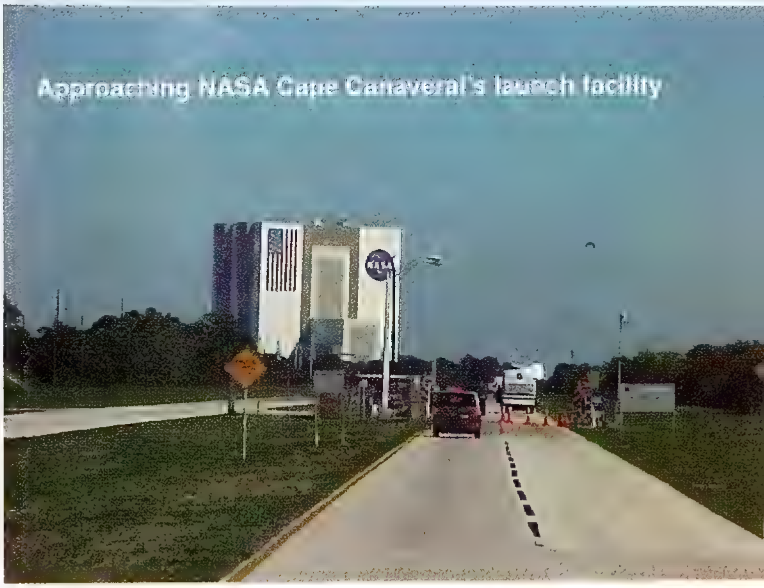
Jill and I spent the rest of the day at the **Houston Space Center** only a few hundred yards from our motel.

Here's Tony! This is the last *Saturn V* at JSC

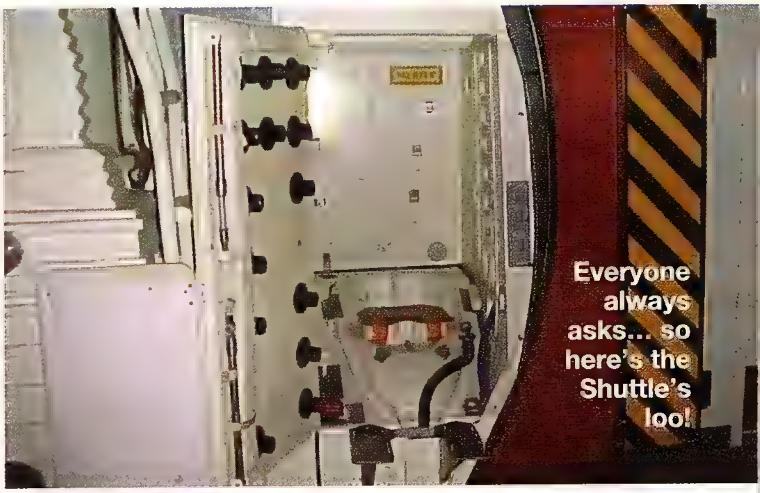
he author at W5RRR

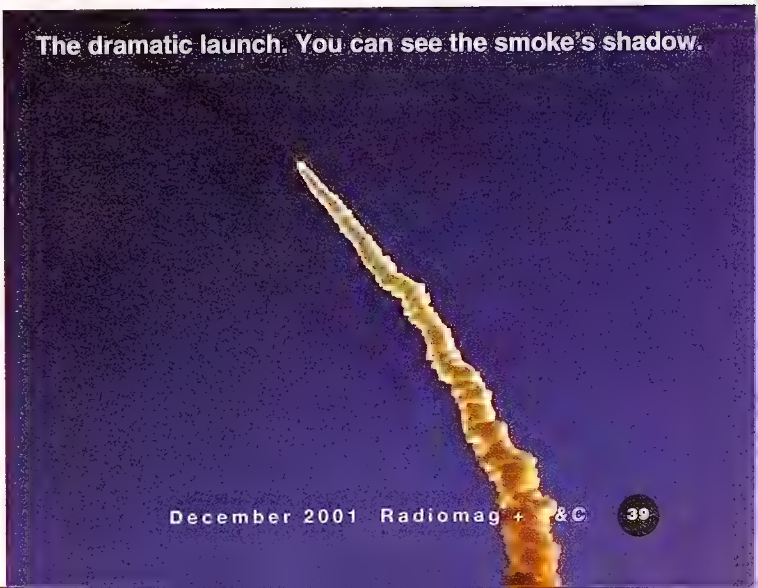

he Shuttle's main airlock

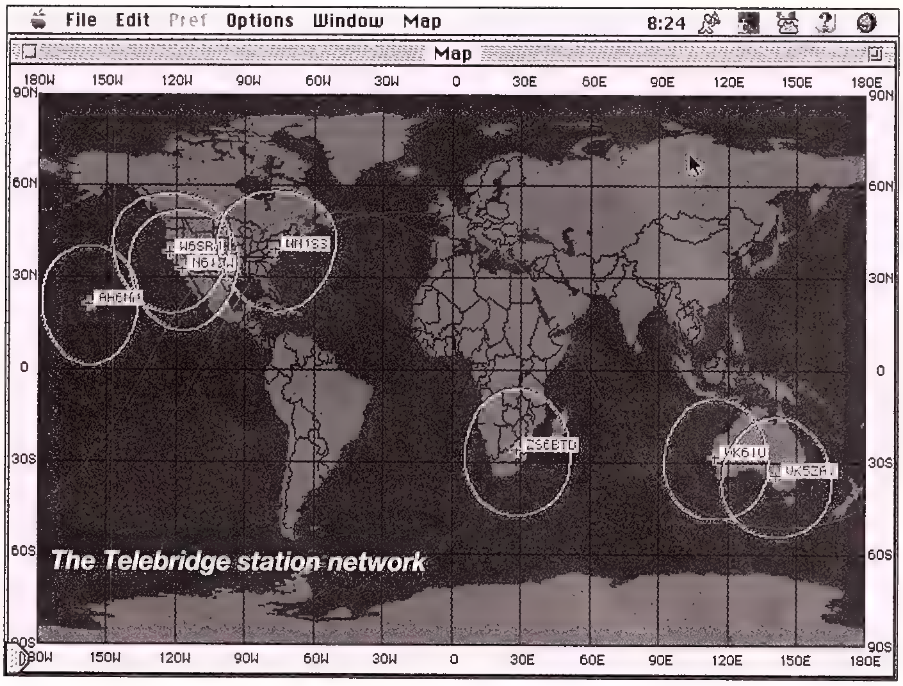

he author's wife Jill admires the Shuttle's flight deck


Approaching NASA Cape Canaveral's launch facility

The author with Aussie astronaut Dr Andy Thomas


Everyone always asks... so here's the Shuttle's loo!


The dramatic launch. You can see the smoke's shadow.



The Telebridge station network

This is the tourist section, and is right next to the Johnson Space Center. You could easily spend a day there.

Commercial tours depart here and take you through the Center to the Mission Control building and past one of the Saturn V rockets left over from all the trips to the moon. The size of this rocket is really mind blowing — you have to see it to believe it. All up, I was told they employ around 15,000 here.

It was starting to rain as we wandered back to our motel to tidy up ready for our night out at Boondoggles with Beth. We tried to get a taxi but it would be around an hour before one was available, so the motel staff offered to drive us there.

Beth also works for the space effort as an Astronaut Rehabilitation Specialist, and arrived with Suni Williams, a trainee astronaut. She then introduced us to Steve Van Derark who also joined us, and introduced himself as an Astronaut Liaison Officer.

We all had an enjoyable evening, mainly discussing the Space Station and how Shep would feel on his return to Earth in two weeks time. Steve drove us back to our motel where we had a good night's sleep, arising fresh and ready for the next day.

The next morning I gave Nick, KC5KBO a call on the hand-held when we had finished breakfast. We were ready for our personal tour of JSC!

I am an honorary member of the JSC Amateur Radio Club W5RRR — to be a full member you have to be employed by NASA, as the clubrooms are on NASA ground and have restricted access. Nick (who is employed by NASA and, amongst many other things, is the amateur licence examiner for the astronauts) duly arrived to pick us up. Nick seems to know everyone and everyone seems to know Nick. He showed us through the Johnson Space Center then took us home for lunch to meet his wife Renee, KC5VMA, daughter Erica, KC5KBP, and son Nick Jnr, KC5SWM. (Imagine the QRM problems in that home!)

After lunch we went back to JSC and went to the W5RRR Club Rooms where I met Gil, WA5NOM. Gil is a specialist with Keps. He has calculated Keps for me sometimes a week ahead when the shuttle is going to boost the height of the ISS.

The day was drawing to a close when Nick dropped us back at the Ramada Inn. We wanted an early night as the next day we left for Florida. Nick's parting words were "when you come back to Houston in two weeks time for the crew's official reception you won't be staying at a motel, you will stay with us!".

Astronaut Jim Wetherbee

So who is VK5ZAI?

During the 41 years that I've had my amateur licence I have seen a lot of changes in amateur radio, from the days of 'home-brewing' your rigs from scratch, to buying commercial gear off the shelf as it is now.

Operating modes have changed from AM to SSB, and digital. I have tried most, including packet at both 1200 and 9600 baud, Slow Scan TV, normal TV, the analogue and digital satellites, and I've enjoyed it all — but I just can't get interested in that dit-dah-dit thing. Maybe after 40 years or so with a Z call they should make you an honorary member of the Morse Code Club!! But then, no one would recognise me if I had to change my call!!

Receiving my call sign VK5ZAI in 1960, I first became involved in satellites with the launch of OSCAR 3 in March 1965, successfully tracking it, and then receiving a repeater signal through it. Later, I became involved with manned space flights and had numerous contacts with various Shuttle flights and the Mir Space Station.

In 1993 I struck up a close friendship with Alex Serabrov, R2MIR, a cosmonaut on Mir. Alex called me many times when he passed over just for a chat, and on one occasion we arranged for him to speak to the students of the Loxton High School. Later in the '90s, when the US and Russia got their act together and NASA was flying astronauts on Mir, I took an active part in helping with communications.

In mid-2000 I was invited to join the **ARISS** (Amateur Radio on the International Space Station) 'telebridge' team. We are a group of eight to ten amateurs with suitable equipment located around the world who are called upon to provide the ISS with a radio telebridge link to anywhere in the world for educational, third party issues, and technical concerns, at any time of the day or night. Further information can be obtained from my web site at **http://www.electric-web.org**

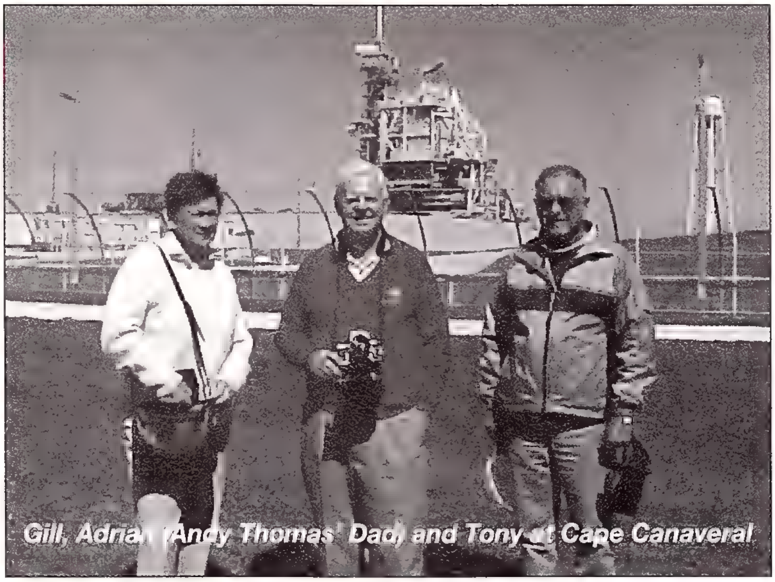
The ISS Alpha crew. That's Shep in the middle.

To the Cape for the launch!

Jim, K5JAZ arrived at out motel early the next morning; he came down from Shreveport and had offered to chauffeur us for two weeks, in return I got him a family pass for the launch. After a quick breakfast we loaded up the cases into his Dodge and set of for Pensacola via Galveston, then across the Galveston Bay on the ferry to Lafayette where we had lunch. We dined at a French restaurant, where alligator was on the menu.

It was most enjoyable, too, although I'm glad I was on the eating end!

From here we passed through Baton Rouge, skirted New Orleans and Mobile making Pensacola around 7pm. It was a long day and Jim was tired, having driven over 1000km that day. After a good night's sleep we moved off again, with another long drive around the Gulf of Mexico, this time skirting Tallahassee and Orlando. Jim had organised the booking of a motel at the Cape some weeks before through his company, it can be hard to get a bed close by during a shuttle launch. We arrived just on dark, hungry and tired. The motel was a welcome sight…


Gill, Adrian (Andy Thomas' Dad) and Tony at Cape Canaveral

Cape Kennedy, the launch site

It was the morning of March 6, 2001. After a good night's sleep we phoned Adrian Thomas, father of Australian astronaut Andy Thomas, to make sure that he and wife Gill had arrived. They had just flown in, on a more or less direct flight to the Cape from Australia, with just one brief stop in LA to change planes. They were extremely tired, of course, so we decided to meet up the next day for the family pre-launch tour of complex. We filled in the rest of the day by driving out and collecting our launch passes and shopping for souvenirs at the KSC Tourist Center. While we were there, we saw Columbia come in piggybacked on a Boeing 747.

Kennedy Space Center is actually on Merritt Island, separated from the mainland by 500m or so, and connected by three or four causeways to the mainland. KSC covers more than 140,000 acres of land and waterways and shares its land with the Merritt Island National Wildlife Refuge. The island is also the home of the Cape Canaveral Air Force Base, a large assortment of shops and restaurants, marinas, and a few private dwellings.

At 10am the next morning, 20 hours before launch, we met Adrian and Gill Thomas as planned at the KSC visitor complex. After being introduced to our two personal tour guides from NASA, we watched a film at the IMAX theatre with the other astronauts' families and friends then boarded a NASA bus.

We were first driven out past the massive Vehicle Assembly Building (this is the largest structure by internal volume in the world covering eight acres and housing the shuttles) to see the Shuttle Landing Facility. This concrete runway is 4572m long, 91m wide and 40cm thick, with 91m of paved overruns at each end. (Fancy the contract to supply all that concrete?)

From here we went on to Launch Complex 39-B, where the Discovery was standing, surrounded by the rotating service structure. This was due to be rolled away in the next half hour, so we were taken to LC-39A for a close-up look of this complex to kill time, then back to LC-39B.

The Shuttle was now completely exposed and looked absolutely massive from this close up. As we got out of the bus for a closer look we were asked to place any cigarettes, lighters or matches in a tray and pick them up on getting back onboard. I suppose they didn't want anyone to light the fuse just yet! It was quite a feeling standing right next to the massive shuttle pointing straight up, knowing that in 18 hours time it would be starting its journey into space with its seven crew onboard. Think about it. A Shuttle, without its massive fuel tank (which simply dwarfs it) or solid fuel boosters, is about the size of a commuter jet aircraft… now picture all this standing on its tail!!

We returned past the Launch Control Building to the Visitors Complex, where we had a late lunch, and then visited the many other interesting displays including the Rocket Garden and Space Mirror. This is a memorial to those astronauts who lost their life in flight or in training for space flight. By now it was time to say goodbye until the next morning to our two guides Sheri and Kerry, returning to our motel for a good night's sleep before the dawn launch. The idea of any sleep that night became a joke…

NASA will not launch a shuttle if the air temperature drops below a certain figure (from memory, 38°F), and the scheduled blast off was less than 12 hours away, but the night was getting colder. We sat on the bed drinking coffee and eating nibbles, listening to NASA TV with endless temperature reports, all the time monitoring the local 2m repeater. Shuttle preparation and the flight, both up and down links, are relayed on several 2m repeaters. The temperature got within two degrees of aborting the launch…

Join Tony and Jill again next month for the conclusion of this fascinating story, as they watch the launch, monitor the flight then attend the landing and reception which follow. There are plenty more great pics too!

CONSTRUCTION PROJECT

A low-cost exposure timer for PCB makers

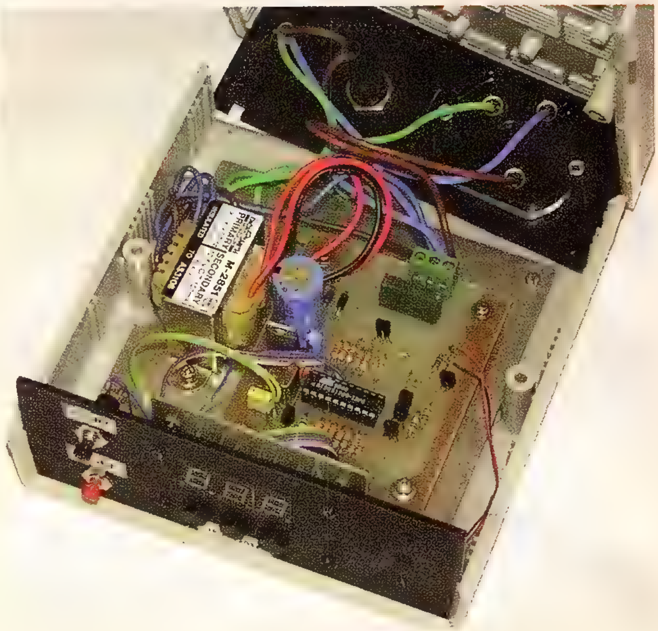
By Robert Payne, VK5PR   E-mail: epaynerg@ihug.com.au

Making a printed circuit board for a project should no longer be a daunting task for the radio amateur. Several methods have been described in the electronics magazines, including the 'photographic process' as well as the 'iron-on toner process'. Both methods work and allow high quality circuit boards to be fabricated in the home electronics workshop with techniques that are easy to master.

This project is for the construction of an exposure timer for use with the photographic method. There are several advantages to using this process, the main ones being consistent results and the ability to make as many circuit boards as needed from the artwork. The standard of artwork also is not as critical as many people think. Excellent results can be obtained using a printout from an inkjet printer on ordinary bond paper as well as tracing paper or drafting paper used in a laser printer. Many libraries have photocopiers with transparencies loaded, and this is an excellent way of getting artwork from a magazine project. Many magazines now provide the project PCB pattern in either a PDF or EPS file from their web sites which enables easy artwork to printed from the home computer. *(Perhaps we should do exactly the same thing in future! Ed.)*

The circuit board that I have used is 'Kinsten' brand and is readily available from several suppliers including Computronics in Perth (**http://www.computronics.com.au/kinsten/prices/index.shtml**) with their representative in Adelaide (Metronics) having board available. I have had consistent results from this material. The only criticism that I have is that care must be exercised when removing the protective coating as it tends to peel away the UV coating a little at the edges and therefore waste board. This material has the advantage of being positive acting and thus does not require any image reversal of the artwork.

This is not the only option though. Ristron board is still available from RCS as well as a pre-coated board from Acetronics. Be aware though that these boards are negative acting and the artwork needs to reflect this. There is some software on the RCS web site (**http://www.cia.com.au/rcsradio/**) to help with this although I have not tried it. Acetronics (**http://www.acetronics.com.au/**) has a negative service where you can E-mail them your design and they will make an A4 negative from this.



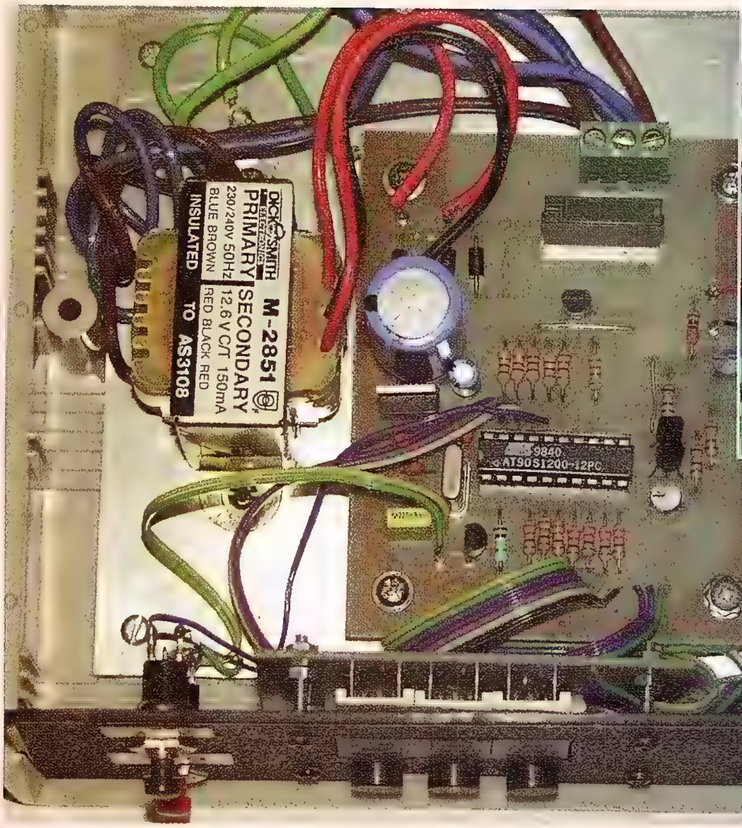
Further details are provided on their web site.

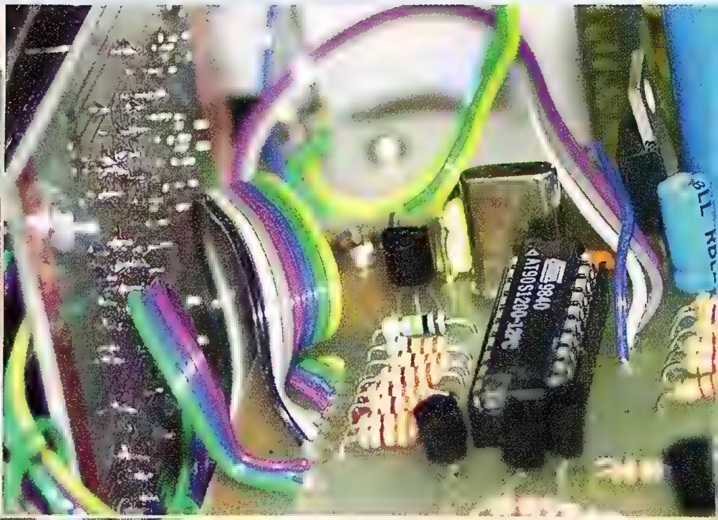
The hardest part in setting up to make circuit boards is the building of the light box. Use only proper UV tubes; the 'black-light' variety are not suitable as UV tubes with a spectral intensity of 350 to 425 nanometres are required. The tubes, starters, ends etc can be bought from most specialist lighting outlets. A look in the 'Yellow Pages' plus a few telephone calls should get a result here.

I bought my 'bits' some time ago from *P J White* in Adelaide. Generally, a box with three 20 watt tubes will give more than enough light with the board held tightly against the artwork with foam on a glass base some 20 mm away from the light source. Exposure is not critical, but with transparency or drafting paper, 60 to 90 seconds will give the correct exposure.

With normal bond paper and using an inkjet printer exposure needs to be increased to about three minutes for a good result. Some boxes described on the web use much smaller tubes that would enable a much more compact setup with appropriate exposure adjustments. Just practice on a small piece of board to get this right. A correctly exposed board should need about 30 seconds or so in the developer (with the developer being agitated slightly) to obtain an image of the tracks and fills with bare copper on the rest ready to etch. Some useful web sites for light boxes and PCB hints are:

http://www.thinktink.com/stack/volumes/volvi/pcbproto.htm
http://www.qsl.net/ct1efl/making_pcbs.htm ,
http://hem.passagen.se/sm0vpo/use/uv-box.htm
http://www.g3ycc.karoo.net/pcb.html
http://mp3gt.mp3car.com/UV%20box.html
http://www.netcomuk.co.uk/~wwl/pcbs.html





A caveat here, almost all of my boards are single-sided. Unless a box is used with top and bottom lights and a vacuum frame to hold the artwork tight in against both sides of the board, double-sided boards are hard to do. The main problem is maintaining 'registration' when turning the board over and exposing the opposite side. It's not impossible, it just becomes much harder and requires patience.

For those wanting to do their own design, things have never been better with many software companies supplying 'lite' versions of their software which are useful enough for any number of amateur radio/electronic projects. Good starting points with layout hints are **Easytrax** from Protel, available from the RCS site with some support software (**http://www.cia.com.au/rcsradio/index2.htm**), **Eagle Lite** (**http://www.cadsoft.de/**), **Target** PCB software (**http://www.ibfriedrich.com/english/index.htm**) and **Ivex** (**http://www.ivex.com/**).

These are just the programs I am aware of; I am sure that there will be many others out there as well. It is a matter of individual choice and exploring what suits you best. Protel had a limited demo of version 2.8 which again would be good for small projects, but I notice that it is no longer on their web site. One warning on Easytrax: it is a DOS program so the video drivers and print drivers are somewhat limited. One suggestion here if larger board is being designed would be to use Easytrax, convert the file to Autotrax format and use the Protel windows demo for printing.

The brainy bits...

Maybe a quick word on microcontrollers would not go astray here as the 'brains' of this project uses one. As far as the radio ham/electronics experimenter is concerned things have never been better! These devices are cheap (Pic, Atmel, etc, whatever you wish to program) and the development software is free. With many low cost programmers available and web-based help, microcontrollers have become very easy to work with.

Now to the timer. This uses an Atmel AT90S1200 microcontroller which is one of that company's lower cost chips. The components that you may have to shop for are the microcontroller, the crystal (3.6864 MHz) and the 7-segment LEDs. I bought my crystal (in fact, I bought quite a few!!!), the 7-segment LEDs, common anode LEDs (green in colour), the BC877 transistors, and the small solid-state buzzer from Rockby Electronics (**http://www.rockby.com.au**). The 7-segment LEDs cost just 77 cents each, but make up the order a bit, as the minimum P&P is $8!

Suitable alternatives (unfortunately at greater cost) are available at Farnell or Radio Spares. The seven-segment LED Displays must be a common anode type and have the pin connections as shown on the schematic for use with the display board. The BC8777 darlingtons were used as they were very low cost from Rockby Electronics and used in some of my other projects. They are not critical — a BC108 or similar will also work as the relay coils take little current. Just remember to swap the base and collector connections on the board. The solid-state buzzer must be one that requires external drive, and DSE has these.

Altronics in Perth stocks the Atmel chip (the lowest cost) as well as the MC34064 reset chip. REC Electronics has Atmel chips but may not be able to sell them in single quantities. Dontronics also stocks Atmel chips with other components and has a mail order service at **http://www.dontronics.com/cat_hard_micro_avr.html**.

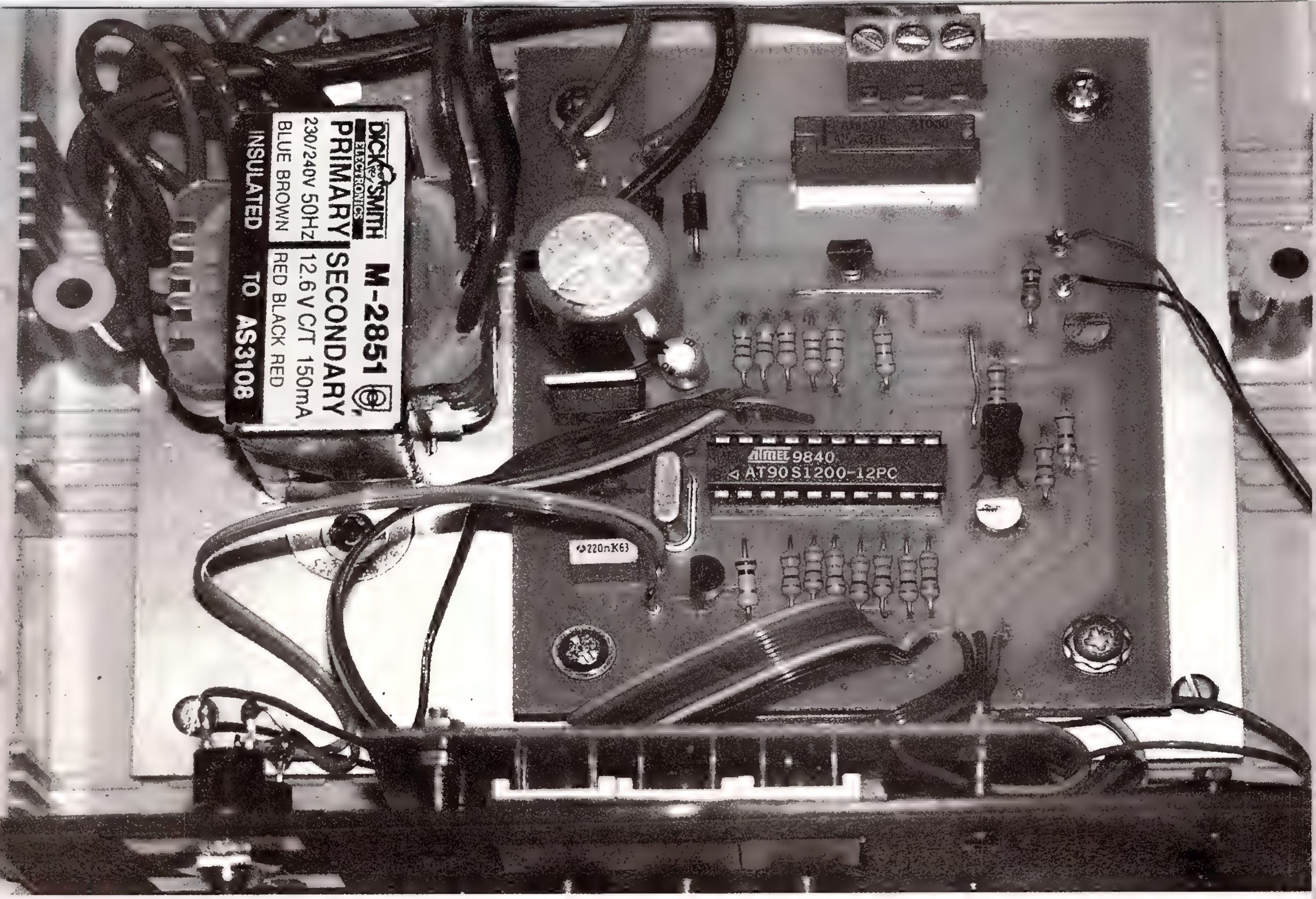
The board has been designed for two varieties of relay, a low-cost compact unit by Jaycar (SY-4025) but with limited stocks or a DSE relay (P 8010). Altronics also has a 12 volt relay (S 4260) that looks suitable, although I have not tried this one. The Jaycar relay is for 9 volt operation while the Dick Smith relay is for 12 volts.

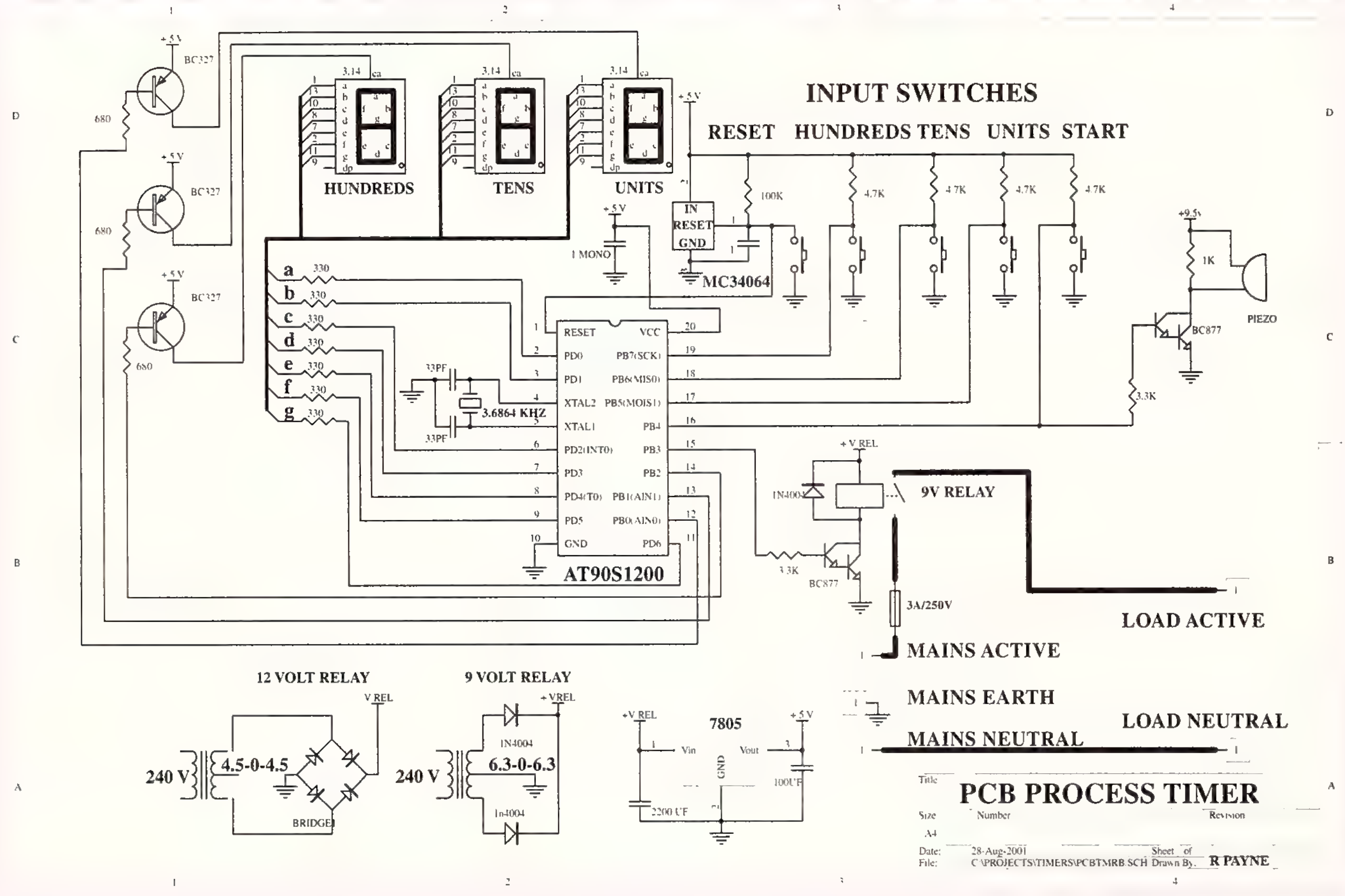
Because of these different relay voltages there are several ways to wire up the power supply. For the Jaycar relay I used a 6.3-0-6.3 volt transformer in a centre-tapped full wave circuit. For the 12 volt relay a 4.5-0-4.5 transformer, use four diodes in a bridge configuration and ignore the centre tap.

I used the Jaycar relay in my prototype with a 6.3-0-6.3 volt transformer, as it happened to be on hand. Luckily, under the light load of this circuit the voltage of the transformer(s) is slightly higher than its rated output and the voltage output and operates the relay reliably. The voltage across the relay coil is 8.5 volts which is within tolerance, with the mains being measured at just under 240 volts.

The Atmel AT90S1200 microcontroller needs programming before it can be used. The Source, EEP code (for EE memory) and HEX code is provided and the source is commented to make its operation easy to follow.

There are some very low cost programmers for Atmel microcontrollers to be found on the web. ⇨


DICK SMITH ELECTRONICS
M-2851
PRIMARY
230/240V 50Hz
BLUE BROWN
INSULATED
SECONDARY
12.6V C/T 150mA
RED BLACK RED
TO AS3108
atmel 9840
AT90S1200-12PC
220nK63


INPUT SWITCHES
RESET
HUNDREDS
TENS
UNITS
START
HUNDREDS
TENS
UNITS
BC327
680
+5 V
330
a
b
c
d
e
f
g
100K
4.7K
1 MONO
IN
RESET
GND
MC34064
33PF
3.6864 KHZ
RESET
VCC
PD0
PB7(SCK)
PD1
PB6(MISO)
XTAL2
PB5(MOSI)
XTAL1
PB4
PD2(INT0)
PB3
PD3
PB2
PD4(T0)
PB1(AIN1)
PD5
PB0(AIN0)
GND
PD6
AT90S1200
+9.5V
1K
PIEZO
BC877
3.3K
+V REL
1N4004
9V RELAY
3A/250V
LOAD ACTIVE
MAINS ACTIVE
MAINS EARTH
LOAD NEUTRAL
MAINS NEUTRAL
12 VOLT RELAY
9 VOLT RELAY
V REL
240 V
4.5-0-4.5
BRIDGE
6.3-0-6.3
7805
Vin
Vout
GND
2200 UF
100UF
Title
PCB PROCESS TIMER
Size
Number
Revision
A4
Date:
28-Aug-2001
Sheet of
File:
C:\PROJECTS\TIMERS\PCBTMRB.SCH
Drawn By:
R PAYNE

A tutorial on AVR microcontrollers can be found at **http://www.dg4fac.de/avr/avr_en/AVR_ALLG.html**

Good starting points for programmers are the Atmel site (**http://www.atmel.com/atmel/products/prod23.htm**); Pony programmer (**http://www.lancos.com/**); Steven Bolt's site (**http://www.xs4all.nl/~sbolt/e-spider_prog.html#programmer**); and Gerry Ming's site (**http://www.qsl.net/ba1fb/**). Another site worth a visit is **http://www.avrfreaks.net** for lots of general AVR hints and information. Yet another site is **http://www.dontronics.com/cat_hard_micro_avr.html**. Again, this list is by no means exhaustive.

These are a very popular microcontroller, especially for the hobbyist, as they are a 'flash memory' component and can be reprogrammed many times.

Operation

The microcontroller timer is set up to give a 5ms interrupt or 'tick' on its timer. This is used for three functions. The first is in the multiplexing of the LED displays (each 7-segment LED is switched on in 5ms 'bursts', which to the eye looks like they are continuously on).

The second is to increment a register in the microcontroller each time the interrupt occurs and compare its value to 200 (200 lots of 5ms in one second). Each second the register is then cleared and the count starts again until the next second is reached. Lastly, it is used to provide a small delay for 'debouncing' the input switches.

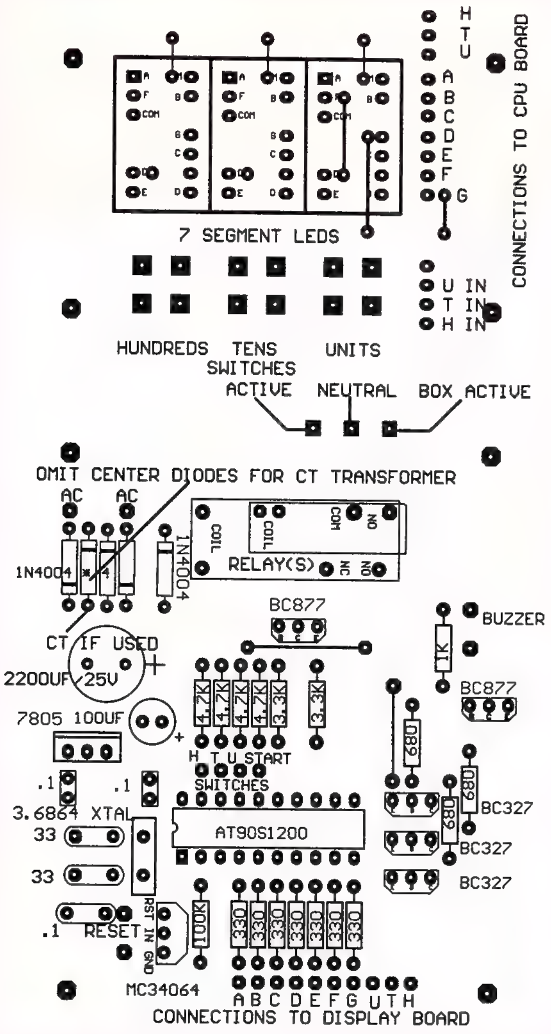
Input to the microcontroller is done with push button switches. Three are used for setting the timing values. These increment three registers used for holding values of hundreds, tens and units. Two switches are used simply to start the process and to reset the microcontroller if required. As each second passes (count of 200 interrupts) the seconds unit register is checked to see if it has reached 0 and if not decremented. If it has reached 0 then it will be reset to 9 and one taken from the tens register. As this happens, the tens register will also be checked for 0 and if so set to 9 and one taken from the hundreds register. This just keeps happening each second until all registers have reached zero so the count has ended.

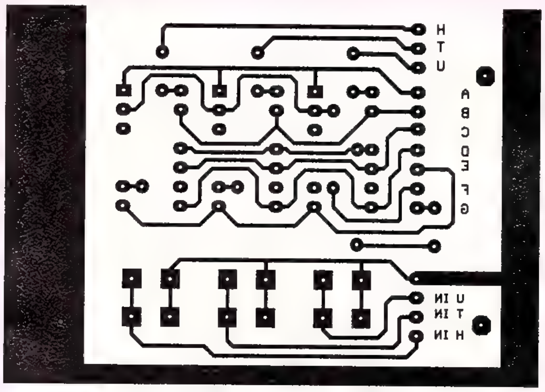
An easy visualisation of this is three columns of figures, hundreds, tens and units holding the value of the count required. Each 200 interrupts, one is subtracted from the units column and the other columns checked to see if they are required to provide the carry.

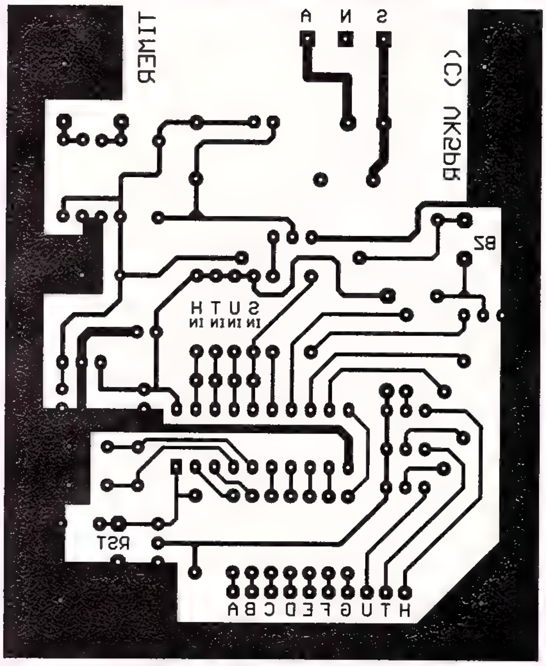
When all of the columns reach zero the time has elapsed. These columns are constantly displayed (well, in 5ms slices!) by the three 7-segment LEDs giving visual feedback as to the state of the count.

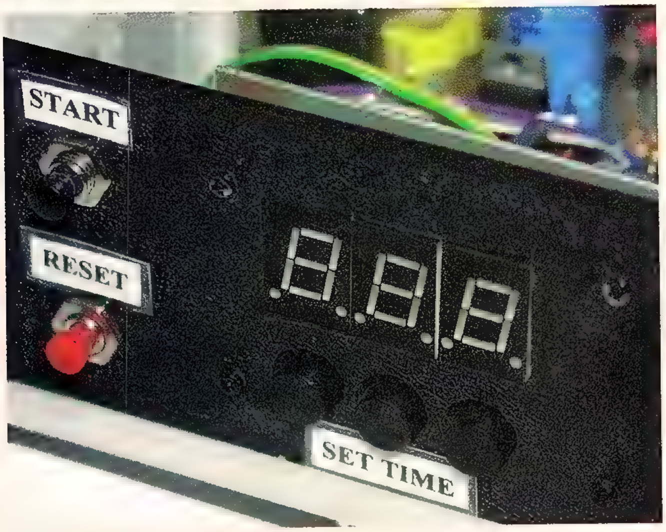
A lookup table is provide in the EE memory section of the microcontroller is used to relate the digital output on the microcontroller port to a corresponding number to display.

When the count starts pin 15 of the microcontroller goes high which turns on the transistor operating the relay and 240 volts is switched through to the light box.









On completion of the count this pin goes low and thus turns off the transistor and the relay.

The start pin 16 is a bit more complex. I really needed one more pin for this project, so this pin serves a dual role. It is initially an input to the microcontroller constantly waiting for the start button to be pushed. On the completion of the count it becomes an output and pulses the solid-state buzzer to give an audible indication that the timing process has been completed.

The next function is really handy. Having completed the timing, the program saves the preset value into memory and reloads these figures for the next operation. This is stored in EE memory and means that, having set your timing for the correct exposure, the timer will 'remember' this value from session to session, even when the power is removed. To change this setting simply input a new value with the input switches and after the timer has completed its count down the new values will be stored in EE memory for future use.

Construction

There are two links on the main board and six links on the display board. These would be a good starting point for the build, followed by the resistors and diodes. Ensure that you know the correct configuration for the power supply you are going to use, and use the correct polarity for the diodes. The capacitors, crystal, transistors, voltage regulator and reset chip can be installed next. Again, take care that the semiconductors are inserted the correct way. Use a 20-pin socket for the microcontroller. Last to mount is the terminal block and the relay of choice. *Do not insert the microcontroller into its socket yet.*

Use ribbon cable to connect the main board and the display board. Both boards are labelled to make this easier. I used a length of 7-connector ribbon for the LED segments, a length of 3-connector ribbon for the LED drivers, and another length of 3-connector ribbon for the input switches on the display board.

The earth wire from the display board is simply a single green wire soldered to any convenient spot on the ground plane of the main board. Take extra care with these connectors as there will be some flexing of the wires when mounting the boards — it can be frustrating if a wire breaks and needs to be terminated again.

Next, the mechanical work can be done on the case. I used a surplus case from an older DSE project (a remote modem controller as I recall) that was on one of DSE 'specials' for $2 some time ago. This was a just a convenient case for me, and the boards can be mounted in the light box or any other convenient case.

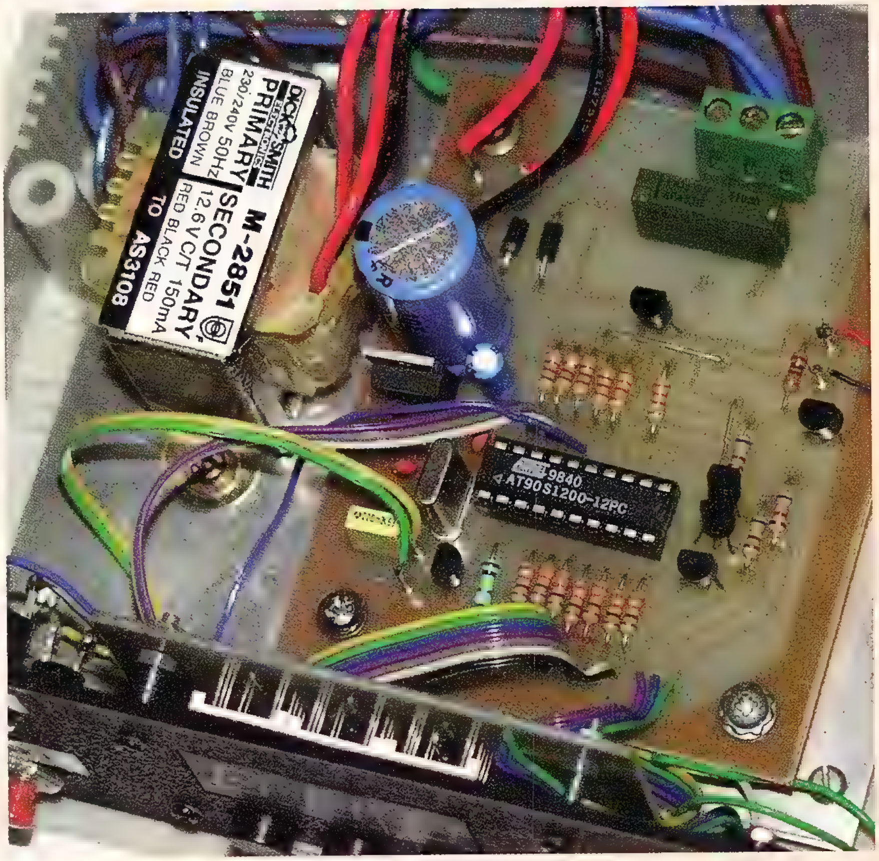
Ensure that a small metal base is used to mount the boards on, and that this is earthed to the mains and the boards. Test the boards before installing them in whatever case you decide to use.

Just remember, mains voltages are involved, good wiring practices and due care are critical here. Make sure that the board, transformer, output socket and all metal work are earthed and that heatshrink is used on the fuse holder. Please be careful, safety first!

Testing

Before doing any mains wiring, test the timer. Simply connect a power supply with an appropriate voltage to the diode input(s) and ground. Nine volts for the Jaycar relay and 12 volts for the Dick Smith relay. First check is the power supply, check that there is 5 volts between the voltage regulator and ground. Check between pins 10 (gnd) and 20 (+vcc) of the microcontroller; there should be 5 volts here also. Now, with the negative probe of the meter on pin 10, check that no voltage on any pin of the microcontroller is greater than 5 volts, especially pins 15 and 16. If this is the case one cause may be incorrect orientation of the output transistor(s), leading to unregulated voltage being fed back to a microcontroller pin.

Now check with the input pins and reset with a multimeter or logic probe. When the appropriate input button is pushed, the pin should go from 5 volts to ground.



A final check is to use a small piece of wire and jumper from pin 20 to pin 15 of the microcontroller and you should be able to hear the relay click.

Next, *remove all power* and ensure that the power supply capacitor is discharged. Now insert the microcontroller and apply power again. You should see 001 on the display, and by pushing the input buttons under each digit its value should change. Pushing the start button should see the count down start, while pushing the reset should put you back to 001 or whatever was the last count on the display.

Set the time for a few seconds, push start, the relay should operate, and when the count has finished the buzzer should sound for three seconds. The display should then return to the value originally set.

If the display is incorrect look for a broken or incorrectly terminated wire(s) on the ribbon cable at either the display board or the main board. Check for short circuits between the wires. Check that you have inserted the links correctly on the display and main board.

Also ensure that the BC327s are wired in correctly and the base resistors are the correct value (680Ω). Check also that the sink resistors are 330 ohms. If all this fails, check the programming of the microcontroller. The values for the display are held in EE memory and there may be just a chance this was not done correctly.

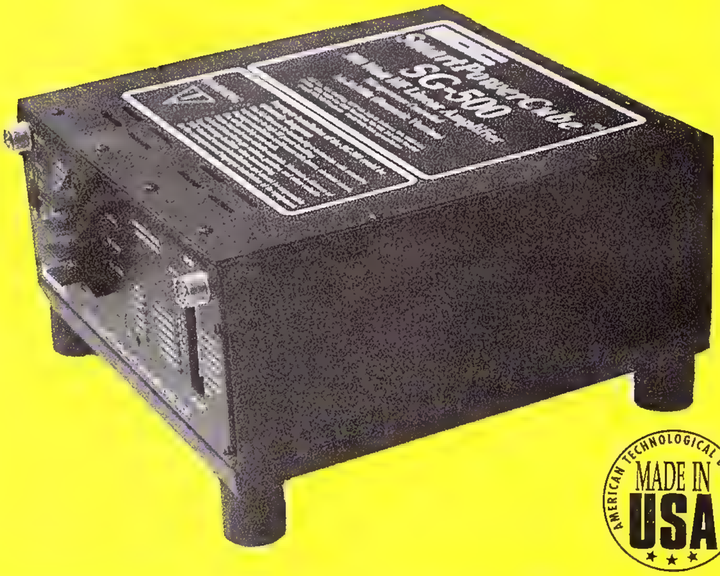
You are now ready mount the boards in your case of choice, so connect up the transformer and do the mains wiring. The centre terminal block connector is neutral, the left hand one (looking from the front of the board) is active and the right hand side is switched output.

Terminate the transformer primary in active/neutral terminals together with the mains inputs (active from the fuse holder). Use an extra neutral wire and run this with the switched output to the output socket. All earths go to solder lugs and are bolted to ground with one of the transformer mounting bolts. **Use appropriate bolts, lock washers and nuts here and ensure a good connection. *This is important.***

Plug a table lamp or some other appropriate load into the output socket and put the timer through its paces checking that this load switches on and off correctly. Hopefully all has gone well and the timer operates correctly. Now plug in your light box and you are now on your way to being able to create some excellent printed circuit boards!

Nothing in this design is critical and I hope that I have presented enough information to enable this design to be duplicated. Just remember MAINS WIRING, DUE CARE, GOOD EARTHING, SAFTEY FIRST. I also hope that this article will convince you that making circuit boards and working with microcontrollers are not 'black arts' and that these skills may be easily realised by the radio amateur.

Believe me, if I can do it, you most certainly can! Once mastered, a wide range of possibilities for simple projects are opened up — take a 20-pin chip, a power supply, a crystal, a small amount of interfacing, some simple code and a little imagination, and you are well on the way to some truly creative projects. I hope this article contributes to this. Good luck! R



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By Tom Moffat, VK7TM / KV7TM
E-mail madhouse@radiomag.com

Imagine visiting a big department store, such as Myer. You walk along the aisles, browsing; you pick up a video camera, look at it, put it back. In the music department you thumb through some CDs. Eventually you wind up in mens' clothing, you buy the underwear you came in for in the first place. You hand over your money and go home. The deal is done.

Now add to this scene, a guy with a clipboard, following you around and taking note of your every movement — what you touch, where you look, how long you spent fondling that video camera. He notes that you were looking at jazz CDs. You pay with your credit card, and the deal is done. (Or so you think…)

As you leave the store Mr Clipboard tears off your sheet of paper and puts it in a big notebook. And a few days later, in your mailbox at home, you get some junk mail advertising video cameras. And another mailing inviting you to join a jazz record club.

This is not to suggest that Myer has guys with clipboards following their customers around. So long as you pay with real cash money, you remain totally anonymous, and nobody knows what stuff you looked at. Perhaps you don't consider your anonymity such a big deal, but it *is*, on principle. Any person observing and recording your actions, no matter how innocent they are, is invading your privacy.

When you visit a merchant on the internet, there is every likelihood there will be a (virtual) guy with a clipboard following you around. This is part of an online business technique called "customer relationship management" (CRM). The online business community would probably prefer that I didn't write about CRM, but it's their own fault. Since I list my occupation as 'consultant' when demanded online, I suddenly became eligible for some free magazine subscriptions about computer technology.

Over time these evolved into computer business magazines. Since my name and occupation were now firmly entrenched in various databases, other magazines started turning up without my even asking for them. These were filled with 'inside information' about how to milk the most information from every website visit, and how to use the information to promote even more business.

For instance: "The internet has become the most pervasive technology to gather information on customers."

This comes about by creating "…a detailed profile of each customer's buying habits…". A record can be kept of each internet visitor as he or she puts something in their shopping basket and then changes their mind, like the video camera example above. Every click of the mouse can be recorded, the title of every CD looked at is noted.

This CRM activity is all done in the name of customer satisfaction, although prospects may sometimes give false or misleading information about themselves to avoid unwanted 'customer satisfaction'. A good part of this 'satisfaction' is up-selling or cross-selling stuff which the customers had no idea they needed.

Of course much customer information is supplied without the prospect being aware. There are ways to prevent this, such as configuring your entire computer with a false identity and supplying an E-mail address that doesn't exist. Some businesses are now testing the validity of E-mail addresses, but you can set up a free account, anonymously, for collection of the junk mail that is certain to follow.

An example: Being a gentleman of rather generous proportions, I ordered a supply of diet pills from an online supplier. They arrived, safe and sound, within two days.

Soon E-mail began arriving advertising other pills this supplier was flogging. These pills got better and better, until I was offered the opportunity to "…become a sexual Hercules…". Yeah, *that* kind of pill.

At this stage a more sensitive person might have become offended at this kind of totally unsolicited E-mail. Some of the subject lines are quite audacious, unrepeatable in a family-oriented magazine. This is another good reason to set up a 'spam bucket' E-mail account and keep its existence hidden lest your kids stumble upon it.

Windows XP: a whole new challenge

Microsoft's new Windows XP officially hit the shelves on October 25. XP replaces all previous Windows products such as the Win9x versions, the absolutely horrid Windows ME, and the highly satisfactory Windows 2000.

On past history, previous Windows versions will be withdrawn following the release of Win XP. So, when you buy a new computer, you will also be purchasing XP whether you want it or not.

During a recent visit to Sydney I had the opportunity to play around with brand new installations of XP on two Gateway computers, a laptop and a desktop. On the surface it appears to be a very capable operating system, although it's rather resource-hungry, and experts say it should not be installed on any computer made prior to 2000.

Even at this early stage, XP is being burdened with unwanted user software such as internet hookups, browsers, and office suites. Microsoft's competitors are seeing this as monopolistic; loading XP with Microsoft software to discourage users from loading software made by Microsoft's competitors.

Apparently Microsoft has been 'encouraged' to allow computer makers to place competing products such as Netscape Navigator on the XP desktop, but only if four Microsoft products are added as well. This is turning into Icon Wars.

But that is a minor concern, compared with what many observers are calling an enormous invasion of privacy.

In the past, users have been encouraged to register new installations of Windows with Microsoft, revealing things like your name and who you work for.

But failure to submit this information had no real consequences.

It would be no problem for other software to access this information too, but it's easy to set up a fake name and company in Windows' registration area. (More on that later.)

Windows XP has a new feature called 'Windows Product Activation', or WPA. This system-level software takes note of how long you've used XP without registering and, after 30 days, part of XP's functionality will be nobbled until you toe the line.

In effect, an outsider can now reach in and take control of your computer!

Other new Microsoft products, such as Office XP, will also feature WPA. In this case you are allowed to launch the program 50 times; after that you can look at your documents but you can no longer make changes to them until you register.

Registration is no longer a matter of typing in the user's name and who he works for.

The WPA software now does an internal examination of your computer and takes note of certain parameters, such as:

- the serial number of your microprocessor.

Yes, despite Intel's assurances to the contrary, it looks like all new CPUs will have individual serial numbers which can tie a particular computer to *your* name. Once this has happened, any concept of anonymity is banished.

Also factored in are:

- the type of CPU (Pentium IV, etc.);
- the amount of memory in your computer;
- the type of graphics card, hard drive, disk controller, CD-ROM drive, and SCSI card. All these devices have methods of identifying themselves when asked. And it appears that any time your computer is online, Microsoft can scan your computer again to see if anything has changed. Have you added more memory? Microsoft will know about it. Upgraded your hard drive? Big Brother is watching!

(Thank God for Apple Macintosh computers then! No more PCs for me. Ed.)

Microsoft says WPA has been implemented to combat software privacy. If they see your copy of a product turn up in a different computer than the one originally registered, it raises the piracy alarm. It seems this would also be the case if, like me, you added a CD burner to your laptop, along with a PC-card SCSI adaptor to control it. New SCSI card? Hey! Pirate!

More scary is the ability for anyone, in the name of law enforcement, to match the computer with a name. A determined drug squad would have little trouble snooping in somebody's hard drive while they are online.

Looking around in mine, they would find that Tom Moffat has a recipe for making methamphetamine.

What they don't know is that the information was used during a recent TV program about meth labs, and the recipe was printed out and handed over to our area's senior drug cop, right on camera, to show how easy it is to find such things on the internet.

Further snooping would reveal that I also have instructions for bomb-making, including nuclear bombs, stored in folders within the writing area of my computer. Wow! Did they just bust a terrorist?

No, just a working journalist. All that info has been used in various newspaper and magazine articles about terrorism and the internet.

But the feds don't know that. Thanks to these new 'anti-terrorist' innovations, in the USA at least, I could be arrested, hauled off to jail, and made to defend myself against drug or terrorist allegations.

Inspired spoofery

The best way to stop worrying about this stuff is to stop it happening. Under earlier versions of Windows, it is easy to change a few things so you can once again become totally anonymous.

The purpose is not to facilitate breaking the law, rather to prevent the law breaking you. In Australia this probably isn't such a big concern, but in the USA people are often being fingered for what began as an innocent act, misunderstood by the authorities.

And following the September 11 bombing of the World Trade Center, this activity seems to be compounding. This is fair enough, given continuing terrorist threats, although civil liberties are being eroded. There is supposedly a four-year time limit on these new security measures.

In computer terms, changing one's identity is called 'spoofing'. It's convenient to have one of those free E-mail addresses, registered to a name and location as far as possible from the true you. This is the identity you use when you are forced to reveal your E-mail address before visiting a web site.

This new address becomes your 'spam bucket'; most junk mail will wind up there rather than in your real personal account. Your fake name also appears when you are posting to news groups. Don't use someone else's name, make one up. Be creative!

On most computers, during internet setup you are asked to supply a host name and a domain name. You are normally advised to use the components of your E-mail address. You can do some spoofing here too.

Make the host something like 'stinky' and the domain 'badfeet.com'. This information is easily read via the internet and junk mail will soon begin flowing to stinky@badfeet.com.

Of course it won't get far because the address doesn't exist.

Another place to spoof is in the control panel networking area where you are asked for your computer name and workgroup.

Be creative again; 'incompetent' would be a good workgroup name.

Finally, you might care to change the name your copy of Windows is registered to.

This is not to promote piracy, but to block one more path to the name of the owner of your computer.

Here we require a little registry hacking: make sure you know what you're doing, or get a more knowledgeable friend to help you. And be sure to back up the registry before beginning.

First compose a new name for you and your company. Something like 'Albert Einstein' and 'Quality Atomic Bombs' will do nicely.

Whoever sees this will certainly know they've been had, and they'll most likely give up on you rather than put this rubbish on a junk mail list.

Start up the registry editor and go to: **HKEY_CURRENT_USER/software/microsoft/mssetup/user info/** — and you will be presented with **DefCompany** and **DefName** (as in 'default'). Insert your new identity here.

Then go to **HKEY_LOCAL_MACHINE/software/microsoft/windows/CurrentVersion**. Again, insert your new identity into **RegisteredOrganization** and **RegisteredOwner**. All done.

Let me stress that no illegal intent is suggested here. It is only to preserve your privacy. You are allowed to close your curtains before undressing. It only seems right that you should close the curtains on your computer too.

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scanner ACTION

Here's our great new scanning column! It's written by scanning enthusiast Allen Davis, who welcomes your input by E-mail to scanning@radiomag.com

Hi, and welcome to a new *Radiomag + R&C* column all about scanning. For some time now there has been something of a void in this magazine due to circumstances beyond the editor's control. Hopefully this column will fill this void in some way...

But first, some information about me! I am NOT a journalist and I have NOT had any formal training in writing for magazines, so please do not expect Pulitzer Prize-winning articles. I will endeavour to do the best my minimal talent will allow, and encourage feedback and suggestions from readers (but please, try to keep the suggestions physically possible!). I also welcome any frequencies that you would like to share with other readers. Privacy will be respected if this is an issue.

I have been involved in scanning and military SWLing for many years, and I am very passionate about this hobby and preserving it. My main interests lay in monitoring security companies and various law enforcement agencies and the military, as I am sure many readers are. Having spent six years in the RAN, the Navy frequencies are of particular interest to me.

However, I will not allow my own personal interests to be the predominant factor in what I put into each month's column. The idea of this column is to cater to a wide range of interests, not just the latest craze or same old stuff that seems to get dragged out time and time again.

For many reasons, mostly to do with common sense, we will not be publishing any police frequencies in this column, however we will, from time to time, publish information relating to monitoring police frequencies, such as the types of radios used, updated callsigns and job codes and any other information to aid in monitoring police. In fact, we cover quite a collection of police codes and callsigns this month. There are, however, many gaps in my knowledge, so if you can help fill in the gaps, other readers and I would be delighted!

I'm looking forward to hearing from you, whether by E-mail, fax or letter. Write to **scan@radiomag.com**, fax me care of the Editor at (07) 5545 0622 or write to Scan Action, PO Box 123, Eagle Heights, QLD 4271

So now... ***ON WITH THE SCANNER ACTION!!***

Monitoring the security companies...

Now let's look at security companies. As I mentioned earlier, I have a particular interest in security companies, having been the owner of one for a few years after leaving the Navy. Monitoring security companies can be quite a challenge. Many of them use plain voice while some use encryption or other data systems.

Most security companies use client codes instead of actual names when using the radio for added security. For example, with my security company we had three separate "runs", and covered three towns. The first town was designated Run A, the second town Run B and the third town Run C. If an alarm went off at a client in Run B the patrol officer would be informed that the alarm was client B26. He would then go to list for Run B and find who client 26 was. Many security companies around the country use this system.

While most of the talk on security company frequencies is quite routine, every now and then you can hear some interesting things. Security officers can be heard asking for assistance from police, fire or ambulance services as they are often the first on the scene at things such as break-ins because they get the call straight from the security monitoring centre.

Most security companies are linked to an alarm monitoring centre. Some companies install and monitor their own alarms while others respond to alarms that are installed and monitored by a different company. For example, my company did not install alarms but I was the local representative for an alarm company. Whenever that company installed an alarm I automatically got the job of responding to them.

Listed below are some frequencies for each state. As my database is quite extensive I have listed only a few of them for each state. I have listed the location of the company where known.

QUEENSLAND

API	Brisbane	470.225
All Night Watch	Toowoomba	472.825
AGPS	Cairns	484.875
Argus	Townsville	488.175
Bodyguard	Townsville	471.250
Bribie Island	Bribie Island	157.855
Chubb	Brisbane	486.725 / 486.875
Central QLD Patrols	Biloela	73.805
Greyport	Bundaberg	169.550
Inka	Cairns	469.925
NQ Security	Cairns	472.425 / 474.825
Ocean Breeze	Whitsundays	55.150
Remm	Brisbane	461.250
Security 1	Brisbane	472.125
Treppil	Toowoomba	158.035
Wasp	Brisbane	490.650 / 464.975

NEW SOUTH WALES

Access Security	Sydney	488.950
Auswide Patrols	Albury	81.780
Bay Security	Batemans Bay	72.920
Bushlands	Port Kembla	465.525
Checkmate	Sydney	484.550
Castile	Sydney	471.025
Century	Newcastle	492.775
Dubbo Security	Dubbo	74.360
Inland	Wagga Wagga	81.060
Mountain Wide	Katoomba	169.690
Orange Security	Orange	73.520
Penrith Night Patrol	Penrith	507.325
SNP	Sydney	494.450
Tumut Security	Tumut	164.320
Urban Ranger	Sydney	466.100

ACT

Chubb	ACT	474.850 / 471.225
Golds	ACT	469.625
Kiegrow	ACT	485.450
Star	ACT	474.850

VICTORIA

Asdic	Shepparton	472.450
Ansec	Melbourne	486.350 / 488.025
ABS Alarms	Melbourne	152.425
Black Watch	Melbourne	484.975
Chubb	Melbourne	487.325
Chubb	Sale	166.9125
D.W.R.	Geelong	472.700
Ferguson	Mildura	159.430
Interceptor	Wodonga	158.590
Korumburra Security	Korumburra	83.190
Southern Star	Melbourne	487.225

TASMANIA

Chubb	State Wide	72.185 / 484.850
International	State Wide	487.225
Pelham	State Wide	472.725
QA	State Wide	474.850

SOUTH AUSTRALIA

ADT	Adelaide	487.575
AN	Adelaide	450.200
Ample	Adelaide	485.575
Brambles	Adelaide	167.650
Chubb	Adelaide	486.400
Chubb	Wilunga	487.400
Consolidated	Adelaide	510.025
Foundation	Adelaide	494.800 / 494.900
Galahad	Adelaide	491.475
Preston Wayne	Adelaide	488.825
River City	Adelaide	158.230
Webster	Adelaide	469.775

WESTERN AUSTRALIA

ASAP	Perth	492.975
Brinks	Perth	470.075
Brambles	Perth	487.150 / 487.250
Chubb	Perth	485.400
Dongara Security	Dongara	462.400
Flexaguard	Perth	465.575
Pt Hedland Security	Pt Hedland	492.025
Sesco	Perth	491.525

NORTHERN TERRITORY

A Grade	Darwin	467.025
Chubb	Darwin	469.975
Guardian	Darwin	471.675
Ruben	Darwin	159.970
Traton	Alice Springs	76.040 / 488.350

Well, I hope you can make some use of these and that you enjoy monitoring security companies as much as I do.

As you can see, I have tried to list frequencies for towns other than just the capital cities to try and even things out a bit for the country people. Narrowing down my massive list was not easy! And you may have updates... *so send them in!!*

But remember, the use of scanners for unlawful purposes is an offence that may result in severe penalties. I do not condone the use of these frequencies for unlawful purposes and have listed them only for use by scanner enthusiasts in the hope that you will do the right thing.

scanner ACTION

E-mail:
scan at radiomag.com

Police services...

Now let's look at something a bit different. I've lost count of the times people have requested a sensible list of job codes and call signs used by the various police services around Australia. So let me have a crack at it, all in one place!

Police **job codes** are used for a number of reasons. The main reason for the use of codes is expediency. Using a two- or three-digit job code or call sign cuts down on valuable air time.

This is particularly important for police services, whose members often have very little air time and are often very busy. There can be no confusion with a code, either. Job codes are used by police services in most states and territories throughout Australia, and a list of codes is essential for monitoring them. Of course, all states have a different system of job codes with varying numbers of digits.

Most of these are easy for the listener to decipher once you have a list...

Call signs, on the other hand, are quite a challenge to work out. Many of the call-sign systems in use can be quite difficult to understand until you have had some practice at it. I will try to keep the call signs as simple as possible in order to avoid confusing too many of you!

To start with, most states precede the numerical call sign with the station name that the unit is from, eg: Melbourne 303 or Tactical 265, so you will know where the unit is from.

I have listed the job codes and vehicle callsigns by state, starting in New South Wales and working right around the country.

Due to the constraints in room I have only listed the most commonly-used codes, although we could cover this area again in more depth if you ask nicely...

Some states, such as the **ACT** and **Tasmania**, have been left out entirely, and this is simply because I have been unable to locate any relevant information whatever. Can you help out there? Anyway, here goes...

New South Wales

As of writing this article I had not been able to locate any job codes, only vehicle call signs. If you have some and would like to share them with readers, please write to me!

Regional Call Signs

2	Staff Officer Operations
3	Staff Officer Intelligence
20-39	Internal Affairs
70-79	Rescue
80-89	Tactical Response Squad
180 - 199	Crime Scene
201 - 249	Highway Patrol Cars
250 - 289	Highway Patrol Cycles
290 - 299	Bicycle Patrols
360 - 399	Accident Investigation Squad
500 - 549	Dog Squad

District Call Signs

1	District Commander
2	Operations Support
3	Intelligence
20 - 29	Special Operations Group
90 - 99	Community Relations
100 - 159	District Detectives

Patrol Call Signs

1 - 9	Caged Trucks or Vans
10 - 19	Sedans
20	Patrol Commander
25	Shift Commander
40 - 69	Patrol Beats
100 - 159	Patrol Detectives

Victoria

Job Codes

Code 1	On patrol
Code 2	At station
Code 3	Meal break
Code 4	Out with vehicle
Code 5	Out at premises
Code 6	Unavailable for jobs (conducting interview etc)
Code 8	On call at home
Code 9	Officer in trouble
Code 11	Unavailable for tasking
Code 12	Accident
Code 22	Transport
Code 46	Drink Driver

Call Signs

100 - 199	Officers
200 - 299	Sedans, 4x4s, station wagons
300 - 399	Divisional Vans
400 - 499	CPU, Marine, Special Units
500 - 599	CIU, MCIG
600 - 659	TMU Cars
660 - 669	TMU Solos
670 - 699	TMU Cars
700 - 799	Special Taskings and Units
800 - 899	Foot Patrols and Bike Patrols
900	Base Stations

Queensland

Job Codes

101	Homicide
102	Serious Assault
104	Abduction
105	Offences against children
111	Rape
114	Wilful Exposure
121	Armed Hold Up
123	Stealing
124	Shop stealing - adult
125	Shop Stealing - child
132	Alarm
134	Break and Enter
141	Prowler
143	Suspect Loitering
201	Fatal Accident
202	Hit and Run Accident
204	Departmental Accident
206	Train Accident
214	Traffic Offence
221	Traffic Hazard
224	Abandoned Vehicle
302	Siege
303	Shots Fired
311	Noise Complaint
312	Domestic
314	Drunk
401	Building Fire
402	Vehicle Fire
411	Explosion
412	Bomb Threat
421	Fuel Leak
422	Chemical Leak
423	Gas Leak
501	Sudden Death
502	Attempting Suicide
504	Mentally Ill Person
505	Industrial Accident
512	Ambulance escort
514	Fire brigade escort
516	Natural Disaster
521	Escapee
701	Police in Trouble

Vehicle Codes

100:	Officers
200:	Sedans
300:	Drunk Vans
400:	Dog Squad / Patrols
500:	CIB
600:	Scenes of Crime
700:	Bomb Squad
800:	Foot Patrols
900:	Traffic Branch

Job Priority Codes

Code 1:	Urgent
Code 2:	Priority
Code 3:	Routine

South Australia

Unfortunately, as noted in the introductory notes, I only have job codes for this state. Again, if a reader can help out with more data, please send me an E-mail and I'll share it with the readers.

Job Codes

102	Drunk
103	Wilful Damage
105	Assistance Required
106	Domestic
201	Accident
202	Fatal Accident
203	Hit Run Accident
204	Police car in Accident
209	Dangerous Substance
302	Robbery
303	Armed Hold Up
304	Shop Steal
401	Audible Alarm
402	Intruder
501	Assault
503	Homicide
505	Rape
601	DUI
602	Drink Driver
603	Traffic Offence
604	Stolen Vehicle
608	Traffic Hazard
701	Building Fire
703	Car Fire
801	Police in Trouble
802	Bomb Threat
805	Missing Person
806	Conveyancing Only

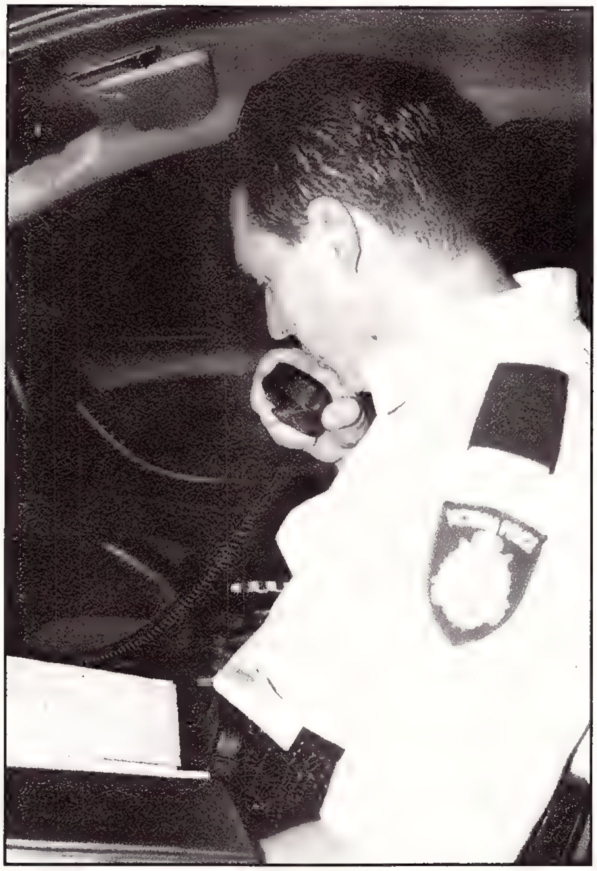
Western Australia

Job Codes

101	Armed Hold Up in Progress
201	Armed Hold Up
204	Homicide
206	Armed offender
210	Shots Fired
215	Accident with Injuries
216	Fatal Accident
229	Domestic
233	Urgent Duress Alarm
235	Police in Trouble
237	Shop Lifter
251	Vehicle Pursuit
303	Bomb Threat
307	Offenders On
312	Theft
314	Wilful exposure
317	DUI
319	Traffic breach
320	Traffic Hazard
325	Assault
328	Disturbance
333	Duress Alarm
336	Premises Found Open
339	Suspicious Person

Specialist Call Signs

AC	CIB Officer
AT	Traffic Inspector
Bravo	Media Liaison
Charlie	CIB
Echo	Radio Techs
K9	Dog Squad
Mike	Motorcycle
Tango	Traffic Car
VM	Water Police



Regional Call Signs

A	District Offices
G	Perth District
H	Midland District
J	Cannington District
N	Joondalup District
O	Peel District
V	Fremantle District
Z	Mirrabooka District

Numerical Call Signs

101-199	GD Vans
201-299	Traffic Cars and Accident Investigators
301-399	Forensic
401-499	Detectives and Tactical Investigation Group
501-549	Crime Units / Burglary Team
601-699	District Support Units
701-799	Motorcycles

Northern Territory

Job Codes

101	Domestic
103	Violent Disturbance
105	Drunk
111	Shots fired
202	Accident with injuries
203	Accident no injuries
204	Fatal accident
205	Hit run accident
206	Departmental accident
303	Shop Lifting
304	Robbery
305	Armed Hold Up
307	Armed offender
308	Audible alarm
317	Prowler
404	Escapee
501	Assault
502	Aggravated assault
505	Homicide
601	DUI
602	Drink driver
603	Traffic breach
604	Dangerous driver
608	Traffic hazard
609	Stolen vehicle
701	Building fire
703	Vehicle fire
802	Bomb threat
900	Officer in trouble

Call Signs

100	CIB
200	Traffic cars
300	General duties sedans
400	GD vans and trucks
500	Utilities
600	4x4s
700	Motorcycles

Well, that's it for this month. Just to confuse things and keep monitors (and members) on their toes, the WA police call signs changed in February this year. I still have not been able to fully get a grip on the changes but as near as I can tell they work like this: if you heard the following unit, Golf 105, it would be a Perth (G Region) Van (101-199). So Oscar 123 would be a Peel region Van. Tango 209 would be a Traffic Unit (Tango from the specialist call sign group).

Now, within each Region such as Perth, there are other stations such as Subiaco, so the call sign might be Golf Sierra 105. So you would know it is a Perth Region, Subiaco-stationed van.

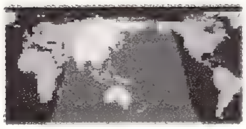
But this is getting all too confusing! As long as you have the basics listed here, you should have some idea. For more information check the various web sites available. A good one is **http://www.warsug.cjb.net/**. I would also like to thank **http://www.ion.com.au/~young/** for his assistance.

Sorry about the gaps above, but I'm sure many readers would have the data we need to complete the listings. As soon as we have it, we'll *print* it! Remember, this column is for *all* scanner users just like you and me, and I am sure that we would all like to have up-to-date information to assist with the hobby that we love.

So please, by all means, send me an E-mail addressed to **scan@radiomag.com**, fax us on (07) 5545 0622, or write to *Scan Action*, Radiomag + R&C, PO Box 123, Eagle Heights, Qld 4271

Bye for now...

By **Bob Padula, OAM**
E-mail monitor@radiomag.com
404 Mont Albert Rd, Surrey Hills, Victoria 3127



broadcast monitor

All times, days, and dates are in UTC. Add 10 hours for Eastern Standard Time, 9.5 hours for Central Standard Time, eight hours for Western Time, 12 hours for NZ Standard Time, 11 hours for Eastern Summer Time, 10.5 hours for Central Summer Time, and 13 hours for NZ Summer Time.

All frequencies are in kiloHertz (kHz); *xxxx- denotes observed sign-on time; -xxxx* denotes observed sign-off time; Au = Australia, Eu = Europe, Am = America, SEA = South East Asia, ME = Middle East, Af = Africa, NAm = North America, SAm = South America. "//" indicates transmissions in parallel.

Items without source attribution are based on information received directly from the stations.

MINI-EDITORIAL. Don't forget that your contributions for *Broadcast Monitor* are welcome, and may be E-mailed or postal-mailed to me at any time! If you would like to volunteer to be part of this column's *'Broadcast Monitor' network*', please let me know.

A reminder also that the B-01 International Transmission period started on October 28 and runs until March 30, 2002, so I have included extracts of some of the new schedules which were available at the time of writing. The majority of the new listings do not become available until early December.

The public versions of the Master Schedule of the HF Coordination Conference (HFCC) for each transmission period are available for unrestricted download at **http://www.hfcc.org/**; click on the 'public files' link.

These are large ZIP files, and include over 6000 entries of most international broadcasters in Eu, ME, Af, NAm, Australia, and some Asian countries. The B-01 schedule was developed from the HFCC meeting in Montreal, in late August, attended by delegates from the HFCC in Europe, the Arab States Broadcasting Union, and the Asia-Pacific Broadcasting Union. The entire file prints out to nearly 100 pages in a small font!

DIGITAL RADIO MONDIALE (DRM)

PROJECT RADIATE. A new Web site has been set up for *Project Radiate*, a group of ten active members of the DRM consortium, including *Radio Netherlands*. The aims of the project are:

- to verify that digital broadcasting in the AM bands below 30 MHz is viable using the standard and system developed by the DRM consortium.
- to confirm that all of the technical features provided by the DRM system including simulcast, alternative frequency switching, and data transmission operate as expected over a broad range of reception conditions, and to gain experience in the operation of the digital service by RADIATE members.
- to show that the expected improvement in both audio quality and reception reliability is consistently achieved.
- to show that the system meets ITU requirements, including that

  —digital broadcasts can co-exist with existing analogue transmissions during the extended changeover period; and

  —the transmissions can be managed within the existing bandwidth allocation.
- to compile a data set to support DRM submission to the ITU.
- to demonstrate that existing transmitters can be adapted to successfully broadcast the DRM signal, and provide information to equipment manufacturers in order to produce the first generation of add-on devices and subsequently making the next generation of transmitters DRM compliant.
- to hasten the development and manufacture of commercial receivers by identifying useful characteristics from knowledge gained using the reference receiving equipment.
- to promote the DRM system as a global standard at conferences and exhibitions, demonstrating that it is a viable alternative to FM and DAB broadcasting through live demonstrations.

The Web site also includes a slide show presentation explaining the consortium's work. *(Media Network)*

AUSTRALASIAN SHORTWAVE GUIDE. Edition 12, publication date early December, covers the international shortwave transmission period up to March 30, 2002, and I am pleased to again offer this 32-page, A5 format, print publication to readers. It gives comprehensive information of English schedules to Australia, Asia, the Indian sub-continent, the Far East, and the Pacific, and broadcasts in other languages to Australia and the Pacific.

The data is arranged in two sections — by studio country and starting time. Each entry shows the broadcasting organisation, frequency, starting time, finishing time, language, target region, transmitter site, transmitter country, studio country and days of operation.

The Guide is compiled from an extensive worldwide network of broadcasters, frequency planners, engineering consultants, professional monitors, hobby monitoring Clubs, and supported by contributors to the Electronic DX Press and Shortwave Australia.

The Guide is available for $10, post paid to any address in Australia, with this charge covering my costs of editorial research, printing and postage. Orders should be sent to Bob Padula, 404 Mont Albert Rd, Surrey Hills, Victoria 3127.

YEAR 2002 ANNUAL BOOKS. As I have done for many years, I am offering a few of the major imported annual monitoring publications at a discounted cost to Australian hobbyists. These are: **World Radio TV Handbook** (UK), **Passport to Worldband Radio** (USA), **Klingenfuss Shortwave Frequency Guide** (Germany), **Klingenfuss Utility Guide**, **Klingenfuss Super Frequency List** on CD-ROM.

These products will be sent from the overseas publishers via airmail directly to readers. At the time of writing, pricing is unknown, but initial delivery is expected early January. If you wish to purchase, please contact me by postal or E-mail and I will send you the updated details, which includes a summary of the contents of each reference. This information is also available on the EDXP site.

WORLD REPORT
ASIA/PACIFIC

AUSTRALIA. Christian Voice Australia — based in Maroochydore on Queensland's Sunshine Coast — has appointed its first Bahasa and Mandarin speaking staff. Mrs Annie Yum from Brisbane, has been recruited as the first Chinese member of the staff at Christian Voice. And Miss Riani Brookshaw, the former Secretary of the CMCC Voice of Hope Board in Sydney is joining Christian Voice also as a producer/presenter.

Earlier, Christian Voice appointed Matthew Bodman as its Technical Supervisor. He previously worked as Technical Supervisor at Triple M Radio in Brisbane, with 4EB — the ethnic community broadcaster and the Family Christian Radio in Brisbane. Mike Edmiston, Director for Asia and Australia, says Christian Voice is still looking for more people who have the necessary skills as bilingual broadcasters and journalists.

Media Contact: Raymond Moti, Station Manager, 2 Avian Street, Kunda Park Queensland 4556, Australia. E-mail Ray.moti@christianvoice.com.au *(Worldwide DX Club)*

BHUTAN. Radio Broadcasting in Bhutan was started by a youth Club in November 1973 with weekly one-hour transmissions of music and news in English. The makeshift studio served as a club office during the week and as a broadcasting studio during the weekends. The 400 Watt HF transmitter, using 4692 kHz, was rented from the local telegraph office and its producers and announcers were club members working on a voluntary basis. The station was called Radio NYAB (National Youth Association of Bhutan).

In 1979, the Bhutanese government, recognising the importance of radio for the distribution of information for development purposes, placed the station under the control of the Ministry of Communications. Airtime was increased to six hours on Sundays and Wednesdays.

In 1986, the name of the station was changed to the **Bhutan Broadcasting Service** with the commissioning of a 5kW HF transmitter and a modernised announcing studio. In 1990, BBS commissioned a permanent studio complex and a 50kW HF transmitter serving the entire country. Broadcasting time was increased to 6.5 hours daily. On November 11, 2000, to commemorate the birthday anniversary of His Majesty the King, BBS started six hours of morning transmissions.

In June 2000, the BBS introduced VHF broadcasting with the completion of the network of transmitters over the western region, covering about a third of the country's 600,000 people. This service, being of superior audio quality, has created renewed interest in the station. However, when TV was introduced in June 1999, this was associated with a slight reduction in the number of radio listeners. The VHF network has now been extended to central Bhutan and there are plans to cover the entire country by the end of 2001.

The BBS Web site is still in an experimental phase and is being progressively updated and expanded; its purpose is to provide

- daily Bhutan news to internet readers
- general information about the country
- information about the station.

Check it out at **http://www.bbs.com.bt**

Future plans include:

- Introduction of BBS on-line: the station has leased a 64 kbs line with the local ISP which is considered to be satisfactory for on-line audio transfers. This would subsequently enable audio streaming using the RealAudio system
- Use of E-mail for news reporting. Travelling takes time in the country where narrow mountain roads connect the towns and villages. It is proposed that news reporting, both text and audio, would be achieved through the telephone system using simple technology such as E-mail and remote accessing.

Latest HF schedule:

Mo-Fr 0100-0600, 0800-1230
Sa/Su 0400-1100

Two freqs are registered: 6035 (primary) and 5030 (alternative)

Programming is in local dialects: Dzonkha, Lhotshampa and Sharchogpa. English is 0300-0400 Mo-Fr, 0800-0900 Mo-Fr, 1000-1100 Sa/Su. (ABU)

INDONESIA. RRI Jakarta has recently made some more changes to its domestic services on shortwave. The relays of Network-5 on 9680 during local morning and late afternoon and early evening are no longer heard.

Instead, Network-3 is now heard with extended hours on 11,760 (in parallel with 15,125 and nominal 1332 MW) which has been drifting to 1332-1334v recently), probably from the same transmitter that previously carried Network-4 on 9680 and switched to carry Network-3 on 11,760 at 0200-0900. The full schedule is not known for 11,760, but it seems to be on continuously from before 0055 to past 1500. It hasn't been traced on 15,125 after around 1400.

4777v appears to operating with irregular hours. It's rather difficult to hear in Malaysia, due to AIR Imphal much stronger on 4775, but it seems to be carrying RRI Network 4, //999 MW. *(Alan Davies, Malaysia)*

JAPAN. Completing a major project, *The History of Broadcasting in Japan in the 20th Century* was published by NHK in March, on the anniversary of the start of experimental broadcasts by NHK's forerunner, the Tokyo Broadcasting Station, in 1925.

The publication, in Japanese, was one of NHK's commemorative projects for the 75th anniversary of the broadcasting service in Japan. It took the NHK Broadcasting Culture Research Institute more than five years to compile the research material.

The publication consists of two main volumes, with a combined total of 1274 pages, a single volume chronicle of 802 pages, and CD-ROM related to the chronicle, beginning with the invention of Morse Code.

The publication concludes with the commencement of satellite digital broadcasting in Japan in December 2000.

The book focuses mainly on Japanese broadcasting stations, both the public broadcaster NHK and commercial broadcasters, with reference also to recent broadcasting developments and other media, including newspapers and the Internet. An English edition is planned for release in 2003. *(Asia Pacific Broadcasting Union)*

World Radio Conference 2003 (WRC-2003)

The following item is based on an article from the on-line newsletter of the National Association of Shortwave Broadcasters (NASB), and refers to the US position on a number of strategic issues concerning international broadcasting. Agenda items refer to positions being adopted by the NASB at upcoming formal conferences:

• Addition of 'digital' as a broadcast method

This agenda item seemed simple enough. This was to have allowed the inclusion of 'digital and other new modulation techniques'. This item is tied through to the Recommendation 519 that came out of WARC-92. This recommendation was the one that basically said that SSB emissions should replace all DSB emissions by 2015, and that all new bands created for broadcasting would be exclusively SSB. The US and other administrations took issue with this, and have allowed broadcasters to use the new bands on a non-interference basis.

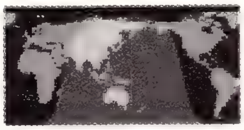
There has been a push at the ITU-R in Geneva to basically grant all new expanded bands exclusively to 'digital'. We are actively fighting this, as we currently have a large shortage of frequencies available now, and also that there is no demonstrated evidence that 'digital' will fare any better fate than SSB. The NASB will be drafting the proposed US position on this agenda item, and we plan to recommend that the expanded bands be open to 'all' accepted modulation techniques. Further, we will propose that the restrictions placed on DSB emissions be removed.

• Re-alignment of the amateur bands worldwide

The ARRL and IARU are actively pursuing this at WRC-03. Our main interest here is to ensure that we are accommodated accordingly if the amateurs are granted spectrum which was originally allocated to broadcasting. The NASB will co-write this proposed US position paper with the ARRL.

• Band expansions for HF broadcasting

This item will look into the needs for expanded HF broadcasting, especially below 10 MHz. We have data to show that there is immediate need for more spectrum, and we have some specific ideas for these expanded bands. The NASB will be drafting the proposed US position for this item. Here again, there is a push for some exclusivity of band space for 'digital,' which we will oppose.



broadcast monitor

EXPERIMENTAL BEACON. Shortwave listeners have been encouraged to listen for experimental HF beacons transmitted from Japan.

The beacons, which use frequencies near 5 and 8MHz, operate under the callsign JG2XA. The University of Electronics and Communications in Chofu City established the beacons to research Doppler shift on HF.

Frequencies used are 5006 and 8006. Both beacons run 200 watts into halfwave dipole antennas.

The beacons started in August. They identify at least every 30 minutes in Morse code.

The beacons should be useful for overseas listeners to assess propagation to Japan, particularly since the closure of the JJY beacons earlier in 2001. See: **http://ssro.ee.uec.ac.jp/lab_tomi/index.html** *(APC News)*

LAOS. Lao National Radio, Vientienne, appears to have resumed its External service after a long absence. It's been heard on 7145 in French at 1300-1330 and in English 1330-1400.

The transmitter seemed to be on as early as 1230, but with no detectable audio until the French programming started some time after 1300. 7145 has been heard testing occasionally in recent months, carrying the National Service in Lao and minority languages, in // with 6130. *(Alan Davies, Malaysia)*

MALAYSIA. The Domestic network of RTM at Kuala Lumpur has made some recent time changes, and 6025 now carries the 'Radio 8' (information) service in Malay 0200-0500, and 'Radio 8' Orang Asli service in Malay and Orang Asli dialects 0500-1400. From 1400, it continues to carry the Suara Islam (Voice of Islam) service in Malay.

Here's the latest monitored external service schedule for the Voice of Malaysia (Suara Malaysia), incorporating some recent changes in the 0300-0900 period.

VOI = Voice of Islam (Suara Islam). **Arabic** 1530-1700 to ME/NAf 15,295; **Burmese** to Myanmar 1430-1530 6100; **Chinese** (Mandarin, except news at 1100 in Cantonese): 1030-1230 11,885 15,295; **English**: 0300-0600 VOI to Indonesia 6175, 9750; 0300-0600 VOI to Australia and NZ 15295; 0600-0825 to Indonesia 6175, 9750; 0600-0825 to Australia and NZ 15,295; **Indonesian**: (Bahasa Indonesia): 2200-0000 6100, 6175, 9750; 0830-1355 6175, 9750; **Malay** (Bahasa Malaysia): 0830-1030 to ME/NAf/ Australia/NZ 15,295; 1400-1700 VOI to Malaysia 6025; 1400-1700 VOI to Indonesia 6175, 9750; 1700-1900 to Indonesia 6175, 9750. *(Alan Davies, Malaysia)*.

NEW ZEALAND. Updated schedule for RNZI, effective to March 18 2002:
1650-1750 11,725 NE Pacific, Samoa, Cook Islands, Mo to Fr; 1751-2215 15,160 Pac, daily; 2216-0358 17,675 Pac, daily; 0359-0605 15,340 Pac, daily
0606-1005 11,675 Pac, daily
1006-1205 15,175 NW Pacific, Bougainville, East Timor, Asia daily
1205-1650 6095 All Pacific; usual closedown is 1205 — also used for occasional night broadcasts to the Pacific for Sports commentaries or Cyclone Warnings.

SRI LANKA. The SLBC proposes to introduce microwave linking for its HF, MF, and VHF networks. Technical assistance has been provided by the Asia Pacific Broadcasting Union. *(ABU)*

TAIWAN. *Radio Free Asia* broadcasts from a relay in Taiwan, using 11,605, monitored from *1400-1500* with Vietnamese.

Radio Taipei International has Japanese on 11,605 1300-1400, transmitter off air briefly just before 1400, then on air again with RFA program. The Taiwan site deduced as the RFA transmitter had the same signal strength, same fading, same audio quality and same frequency. Frequency measured of RTI and RFA as 11,605.05, so it's obviously the same transmitter. *(Robert Chester, Cheltenham, SA)*

VIETNAM. The Voice of Vietnam is planning to introduce remote control and monitoring systems for its VHF, MF and HF transmitters. This may include systems based on IP networks, and the proposal has been established with technical assistance received from the Asia Pacific Broadcasting Union.

Voice of Vietnam announced that it had recently expanded its indigenous language services on VHF and MF. This will probably affect HF operations and some sleuthing of HF Domestic Service freqs would be useful! The HF relays of the Domestic Service have been noted here in Melbourne at sign-on at 2200 on 5925, 5975, 6020, 7210 and 9530.

EUROPE/MID EAST

CZECH REPUBLIC. Radio Prague is preparing a new booklet on the history of the station and the development of its programming. This is to commemorate the 65th anniversary of the organisation, Czech Broadcasting. *(Wolfgang Büschel, Germany)*

DENMARK. For the B-01 season, *Radio Denmark* continues to use the SW transmitters in Norway on a joint basis with *Radio Norway International.*

For each hour, the first 30 minutes is devoted to Radio Norway International programming in Norwegian, then Radio Denmark broadcasts are aired for the final 25 minutes, in Danish.

Transmissions directed to Asia, Australia, and NZ are as follows:
0000-0055 7490 SEA
0100-0155 7495 India
0200-0255 7490 India
0800-0855 13,800 Au, 15,705 FE/NZ
0900-0955 13,800 Au, 15,705 FE/NZ, and 18,950 SAs
1200-1255 15,735 WAu/SEA, 12,070 FE
1300-1355 15,735 WAu, 13,800 FE
1400-1455 13,800 India
1500-1555 13,800 India
1800-1855 9980 NZ
2000-2055 9980 Au
2100-2155 9510 Au
2200-2255 7465 FE
2300-2355 7490 WAu/SEA, 9480 FE

Daily live transmissions in Danish are broadcast at 0930 and 1330.

Reception reports to Radio Denmark will be QSLd by card, and return postage is appreciated — one IRC or US$1.

The complete B-01 Radio Norway International/Radio Denmark schedule is available at **http://www.dr.dk/rdk**

UNITED ARAB EMIRATES. Merlin Communications, the global communications facilities management company, has signed a Heads of Agreement contract to operate and maintain Emirates Media's short wave transmitter site in the United Arab Emirates (UAE), which started on August 1, 2001.

The signing of this contract sees Merlin further enhancing and expanding its global comprehensive shortwave broadcasting network.

These outstanding facilities provide a new dimension to Merlin's broadcasting capabilities offering exceptional coverage of key target regions in the Middle East, Africa, Central Asia, Eastern Europe and the Indian sub-continent.

The final contract enables Merlin to sell capacity to international broadcasters interested in transmitting to these regions.

The shortwave facility consists of four 500 kW transmitters that are able to operate at half power, providing customers with cost effective coverage of key target regions.

The site also includes 41 fixed antenna systems, as well as two rotating antennas, which will enable broadcasters to accurately pinpoint their target audience.

Mahmood Al-Redha, Emirates Media's Head of Transmission (TV and Radio) said "Merlin's expertise and experience in the operation and maintenance of similar global transmission facilities made them the clear choice when seeking a partner.

"We are delighted to be associated with such a prestigious international network provider, and look forward to working together to develop this facility in the future."

Merlin's Director of International Communications and Digital Services, Rory Maclachlan said "The Emirates Media facility is at the heart of the world's major shortwave listening populations, and will enable us to expand our comprehensive network of global short wave sites and coverage of these regions.

"The current operation and maintenance of the facility is second to none and will enable us to fully utilise the facility from day one. Merlin is currently discussing this facility and its capabilities with several international broadcasters who are very excited about this unique opportunity."

Broadcasters already using the new relay include Radio Canada International, Family Radio and Adventist World Radio.

UNITED KINGDOM. The Association for International Broadcasting (AIB) is dedicated to the International Broadcasting industry and its informative monthly newsletters may be viewed at **http://aib.org.uk**

UK — Radio Ezra to the Pacific. The religious broadcaster Radio Ezra returned to shortwave in October with a weekly half-hour series of programs aimed primarily at the Pacific.

It uses 12110, 0900-0930 each Sunday, from a leased transmitter in Russia.

Reception reports are requested, for response with the official station QSL card and return postage is appreciated — US$1 or one International Reply Coupon.

Its postal address is: Water Into Wine Ministry, Box 16, Stockton on Tees, TS18 3GN United Kingdom.

Details about Radio Ezra's studio, equipment, transmitter details and general station information can be found at the Radio Ezra homepage.

Ministry Homepage:
http://www.water-into-wine.com
Radio Ezra Homepage:
http://radioezra.members.easyspace.com

YUGOSLAVIA. RTS (Radio Television of Serbia) and RTVCG Montenegro (Radio Television of Crna Gora) have been admitted to the European Broadcasting Union.

The two broadcasters serve what remains of Yugoslavia, except for the UN-administered territory of Kosovo, where the public broadcaster RTK is operated by the EBU.

They were accepted for joint membership, as EBU members must have national coverage. *(Association for International Broadcasting)*

AMERICAS

USA. Charles Caudill, President of World Christian Broadcasting, the organisation which owns and operates station KNLS, at Anchor Point, Alaska, has announced ambitious plans for expanding the New Life Station's transmissions.

The ministry has initiated a campaign to raise US$7 million to install a second transmitter and antenna system at the broadcasting complex.

Additional programming resources will also be added.

As in the past, listeners will not be asked to donate toward the work. Needed funding will be raised among interested Christians living in the States.

Caudill says he hopes to be able to begin construction in the spring of 2002. The ministry intends to devote the new transmitter exclusively to Chinese language broadcast time on the original Harris 100 kW transmitter.

The new transmitter will be divided between Russian and English language programming. Kevin Chambers, the New Life Station's Chief Engineer, has also begun a project to upgrade the ministry's audio chain.

He will be installing all new digital recording equipment at the Tennessee Operations Centre studios.

In addition, a new digital program automation system by Broadcast Electronics will be installed in Tennessee as well as in Anchor Point. *(Worldwide DX Club, Germany)*

From November 25, until January 26 2002, KNLS, is scheduled:
0800-0900 11,765 English
0900-1000 9615 Russian
1000-1100 9615 Chinese
1100-1200 9615 Russian
1200-1300 9615 Chinese
1300-1400 11,765 English
1400-1700 9615 Chinese
1700-1800 9615 Russian

All broadcasts are intended for Siberia and Asia.

SPECIAL BROADCASTS TO COMMEMORATE HISTORIC TRANSMISSIONS.

The European DX Council and Radio Miami International are jointly commemorating the centennial of the first trans-Atlantic transmissions by Guglielmo Marconi between Poldhu, Cornwall, and St John's, Newfoundland, Canada. The anniversary is December 12.

There will be special transmissions from WRMI (Miami, Florida) *on that day only*, in English, Italian, French, Spanish and German, to this schedule: 0130-0200 9955, 0330-0400 7385, 1330-1400 15,725.

Special QSLs are offered, and reports should be sent to EDXC, CP 18120, 50129 Firenze, Italy, or WRMI, Box 5126852, Miami, Florida 33152, USA.

MEDIUM WAVE

AUSTRALIA. The Australian Broadcasting Authority has decided to make licences available for one new commercial radio service and five new community radio services in Adelaide.

To make the new commercial radio service available, the Adelaide Foothills translator for commercial radio service 5SSA is required to change from its existing frequency (91.1 MHz) to a new frequency (90.3 MHz) and community radio service 5CST is required to change from its existing frequency (88.5 MHz) to a new frequency (88.7 MHz) within the next 12 months.

Two of the community radio licences are for Adelaide-wide services, while the other three are to serve the local communities in the Adelaide Foothills, Port Adelaide and the Barossa Valley. In addition, pioneer community radio station 5UV will convert to FM after 29 years on the AM band.

The ABA has also decided to make licences available for two new open narrowcasting services in Adelaide and one in the Barossa Valley.

The ABA's decisions are contained in its final licence area plan for radio in Adelaide, released in September.

The ABA has taken into account the views of all who made submissions before deciding on the most beneficial mix of new services to be made available in Adelaide, said Professor David Flint, ABA Chairman.

The decision to convert 5UV from AM to FM transmission will allow it to better serve its licence area and provide parity with the new and existing wide coverage community FM services in Adelaide.

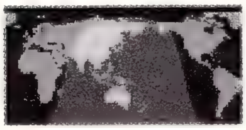
The release of the final licence area plan for Adelaide, which is available on the ABA's Web Site **http://www.aba.gov.au**, at local libraries or by calling the ABA on Freecall 1800 810 241, leaves Perth as the only metropolitan radio market to be finalised.

The ABA released the final licence area plan for Perth in October. *(ABA)*

AMT produces a weekly Australian radio industry newsletter and is distributed through Topica. Further details at **http://www.amt.org.au.** *(Jeff Burford, Port Augusta in Medium Wave Australia)*

GERMANY. DRM long-term test on medium wave. Since July 25, 2001, Deutsche Telekom AG is broadcasting digitally 24 hours a day on MW 729 kHz from the station at Putbus/Rügen.

This long-term DRM transmission is performed with a 10kW Telefunken TRAM transmitter. The DRM signal is compatible to CM300V4 and the main service channel contains audio and data streams encoded by FhG's Content Server.



broadcast monitor

Repercussions from the BBC pullout of Australia, Oceania, and North America

This story by Jeff White, WRMI/vice-President of the National Association of Shortwave Broadcasters, is sourced to the NASB on-line newsletter:

As was widely reported in the national and international press, the BBC World Service rather abruptly discontinued its shortwave transmissions to North America, Australia, New Zealand and the Pacific at the end of June, despite thousands of protests from devoted listeners of many years.

The BBC claimed that its shortwave audience in North America was over a million, but was declining in favour of access to the BBC via Internet streaming audio and local rebroadcasts on FM stations. Dedicated shortwave listeners protested that many of them do not or can not listen to the BBC via the Internet, and that the local rebroadcasts of BBC programming are usually just short news bulletins or program segments aired on certain public radio stations with limited coverage areas and generally in the middle of the night when there are few listeners.

Meanwhile, the shortwave service of ***Radio Netherlands***, which also broadcasts world news, documentaries and cultural programming around the world, took advantage of the BBC's abandonment of North America to take over many of the frequencies the BBC had long used for those transmissions. So when listeners tuned to these frequencies on July 1, instead of the BBC World Service, they heard a special program from Radio Netherlands promoting the station's shortwave broadcasts to North America. The publicity campaign lasted for a few weeks, after which Radio Netherlands decided to remain on some of the former BBC frequencies indefinitely.

While the BBC was seen as 'writing off' its shortwave listeners in North America, Radio Netherlands claimed the objective of its publicity campaign was "...to recognise and support the millions of shortwave radio owners in North America who still believe in direct contact with Europe from across the Atlantic...".

RN's Director General, Loudewijk Bouwens, remarked "Shortwave remains the only direct way to share a full range of important issues with a loyal audience in the USA and Canada. North American listeners have always been some of the most committed," Bouwens explained. "We're guaranteed a full postbag or E-mail box when we explain attitudes that people in the Netherlands have to drug prevention or euthanasia."

He said that, like the BBC, Radio Netherlands also has certain programs rebroadcast on FM stations in the US and Canada, "but shortwave offers us the opportunity to share a much wider range of news and features at a convenient listening time. We can offer more depth and context than is allowed on domestic media, knowing that the audience has made that extra effort to tune in."

Bouwens also pointed out that experiments with digital broadcasting could mean much higher fidelity shortwave broadcasts in the not-too-distant future.

As for webcasting, Radio Netherlands offers its audio on the Internet, but it says the current streaming technology is useless at coping with the peak demands of serious live broadcasting. For every 100,000 listeners over the air at any one moment, the station says there are only a few thousand capable of hearing the broadcasts simultaneously on the web. "Webcasting is expensive. It is often congested during a crisis. There are copyright restrictions. It's simply not ready for prime time," said Bouwens.

The BBC's move to cut shortwave broadcasts to North America came just a few months after *Swiss Radio International* announced it would be phasing out all shortwave transmissions worldwide over the next few years. It has already discontinued its broadcasts to North America. SRI, too, claims that it will continue serving its audience via the Internet and other new technologies.

Some observers believe these international broadcasters are resorting to Internet and local rebroadcasts because of the relatively small cost compared to the expense of shortwave transmissions. Most government-funded international broadcasting services have experienced serious budget cuts since the end of the Cold War and they must cut costs in order to survive.

The director of *Radio Austria International* says his service is in danger of disappearing altogether due to lack of funding, and budget problems at *Radio Canada International* have recently resulted in the elimination of all newscasts on weekends and the reduction of all of its language services from one hour to 30-minute programs daily. Ironically, these cuts come at a time when shortwave radio sales appear to be increasing significantly in many parts of the world, including North America.

Esmail Hozour, head of Grundig's shortwave sales in North America, was quoted in a recent edition of *Radio World* as saying there are over a million shortwave receivers sold in the US and Canada each year, and sales have been growing every year since 1991, "often at double-digit rates". His counterpart at Sony of America, Paul Sabo, told the same magazine that Sony's shortwave receiver sales have increased 30 per cent over the past two years.

The service was successfully decoded by various stationary and mobile FhG Software Receivers.

Within the next few weeks Deutsche Telekom intends to do some measurements in terms of reliability and system performance.

After these tests it is planned to distribute the results in connection with the RADIATE project. See the special DRM page at **http://www.rnw.nl/realradio/html/drm.html** *(Media Network)*

ELECTRONIC DX PRESS. I started the EDXP back in 1995, as a free on-line service to the shortwave hobby community worldwide. It now has Australian offsprings, *Shortwave Australia* and *Medium Wave Australia*, for Australian hobbyists.

Each group offers free membership, with regular on-line newsletters — the *EDXP Shortwave Radio News*, the *Australian Shortwave News*, and the *Australian Medium Wave News*, plus direct electronic interchange of news and information between members.

Everything, including on-line enrolment forms for each of the groups, is at the EDXP Web site: **http://members.tripod.com/~bpadula/edxp.html**

The Australian Gridsquare League

By Guy Fletcher, VK2KU
E-mail: vk2ku@hermes.net.au

They're a competitive lot, the radio amateurs! While some of them are content with pure experimentation, many of them thrive on competing with other "hams" to see who can work the furthest distance, the most stations in a time, or whatever.

One popular field of competition is for those who inhabit the higher frequency ranges of VHF, UHF and above. And here, particularly in isolated Australia, is where the question of "how many countries" one has worked gets a bit meaningless, particularly in the higher frequency ranges where transmission paths can be particularly short (unless you use satellites or bounce your signals off the moon).

The answer for this was to divide the world of radio into a grid system, and this "Maidenhead Locator System" is in common use today to continue the spirit of competition. VHF/UHF/SHF enthusiasts in this country supply details of their contacts to VK2KU, who updates the table accordingly.

You can see the full table on the Internet at **http://www.hermes.net.au/vk2ku/gridsq.html**

Here are the rules for submission:

1. Submit number of grid squares claimed as worked on 144MHz, 432MHz, 1296MHz, 2.4GHz, 3.4GHz, 5.7GHz, 10GHz, 24GHz. No details of actual squares/stations required.
2. Starting date for contacts: 1st January 1990 (as for WIA Awards).
3. No distinction between modes (CW, SSB, FM etc); a square is a square!
4. EME claims to be listed separately.
5. Contacts via repeater or active satellite should not be counted.
6. Cross-band contacts should not be counted (on either band).
7. Contacts with aeronautical or maritime mobile stations should not be counted.
8. Except as allowed by Rule 9, all squares claimed must be worked from locations within a single limited 'region', which can be encompassed by a circle of radius 50km.
9. A gridsquare may also be claimed by a 'reverse contact' from that square to any station in your home square.
10. Entry is open to any licensed Australian amateur operator.
11. The Table of Standings will be posted on the VK-VHF Reflector (a user group for VHF/UHF enthusiasts; ask Guy for details!) roughly every three months, and may be reprinted from there in AR and other magazines.
12. Updates to me at any time by E-mail/mail (QTHR 2002).

Comments

If you move house to a new 'region', you have to start again, though your old score still stands of course.

The intention of Rules 8 and 9 is to encourage portable operation (up to 100 km from home, or from a rare gridsquare) to overcome the limitations of a home QTH, but not to an extent which confers an unreasonable advantage. If you regularly go portable to a different 'region', you can keep a separate tally for the /p operation.

There is no minimum number of squares to start — you don't need to have 50 squares on 2m! Please enter at any level so that we may all enjoy watching the growth of your tally.

No correspondence will be entered into by me regarding the veracity of people's claims. If you want more details from someone, please E-mail them privately.

Good luck. Now go for it!! 73 Guy.

Gridsquare Standings at 1 November 2001

144MHz Terrestrial

VK2ZAB	Gordon	70
VK3BRZ	Chas	62
VK2KU	Guy	59
VK2DVZ	Ross	56
VK3TMP	Max	53
VK3EK	Rob	51
VK3CY	Des	50
VK2FLR	Mike	48
VK3XLD	David	47
VK3ZLS	Les	47
VK3BDL	Mike	43
VK2MP	Rej	41
VK3BJM	Barry	40
VK2DXE	Alan	38
VK3WRE	Ralph	37
VK3CAT	Tony	34
VK3KAI	Peter	32
VK3KEG	Trevor	31
VK4KZR	Rod	29
VK2EI	Neil	28
VK6HK	Don	28
VK4TZL	Glenn	25
VK7MO	Rex	21
VK3KME	Chris	20
VK2TG	Bob	19
VK4DFE	Chris	19
VK6KZ	Wally	19
VK3TLW	Mark	18
VK2TK	John	17
VK3AL	Alan	17
VK6KZ/p.	Wally	16
VK3DMW	Ken	13
VK2DXE/p	Alan	10
VK3YB	Phil	10
VK2TWO	Andrew	5
VK2CZ	David	1

144MHz EME

VK2FLR	Mike	85
VK3CY	Des	66
VK2KU	Guy	21
VK2DVZ	Ross	2

432MHz

VK2ZAB	Gordon	46
VK3BRZ	Chas	45
VK3XLD	David	43
VK3EK	Rob	30
VK2KU	Guy	28
VK3BJM	Barry	28
VK3ZLS	Les	27
VK2DVZ	Ross	25
VK3TMP	Max	25
VK3BDL	Mike	24
VK3CY	Des	23
VK3KAI	Peter	23
VK3WRE	Ralph	21
VK2MP	Rej	20
VK3CAT	Tony	14
VK4KZR	Rod	14
VK7MO	Rex	14
VK3TLW	Mark	12
VK6KZ	Wally	12
VK2TK	John	11
VK3AL	Alan	10
VK3ANP	David	10
VK3KEG	Trevor	9
VK6KZ/p.	Wally	8
VK2TG	Bob	7
VK3KME	Chris	7
VK3YB	Phil	4
VK2CZ	David	3
VK2TWO	Andrew	3
VK4DFE	Chris	3
VK2DXE/p	Alan	2
VK3DMW	Ken	1

1296MHz

VK2ZAB	Gordon	25
VK2KU	Guy	19
VK3EK	Rob	19
VK3KWA	John	19
VK3XLD	David	18
VK3BRZ	Chas	16
VK2DVZ	Ross	13
VK3BDL	Mike	12
VK3KAI	Peter	11
VK3TMP	Max	11
VK3WRE	Ralph	11
VK3BJM	Barry	10
VK3ZLS	Les	9
VK4KZR	Rod	9
VK7MO	Rex	9
VK2TK	John	8
VK3TLW	Mark	8
VK3AL	Alan	7
VK6KZ/p.	Wally	5
VK2MP	Rej	4
VK6KZ	Wally	4
VK2DXE/p	Alan	2
VK3BVP	Shane	2
VK3CY	Des	2
VK3KEG	Trevor	2
VK2CZ	David	1
VK3DMW	Ken	1
VK3YB	Phil	1

2.4GHz

VK3WRE	Ralph	8
VK3KAI	Peter	7
VK3EK	Rob	4
VK6KZ	Wally	4
VK4KZR	Rod	2
VK3BJM	Barry	1
VK3TLW	Mark	1

3.4GHz

VK6KZ	Wally	4
VK3EK	Rob	3
VK3KAI	Peter	1
VK3WRE	Ralph	1

5.7GHz

VK3WRE	Ralph	6
VK3KAI	Peter	4
VK6KZ	Wally	4
VK3BJM	Barry	2
VK6BHT	Neil	2
VK3XLD	David	1

10GHz

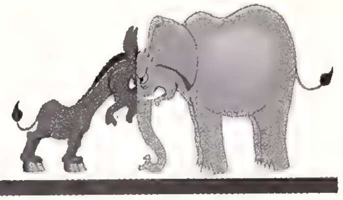
VK6BHT	Neil	9
VK6KZ	Wally	5
VK3EK	Rob	4
VK2EI	Neil	2
VK3BJM	Barry	2
VK3KAI	Peter	1
VK3TLW	Mark	1
VK3WRE	Ralph	1
VK3XLD	David	1

24GHz

VK6BHT	Neil	3
VK2EI	Neil	2
VK6KZ	Wally	2

CONTESTS

By Ian Godsil, VK3VP
contests@radiomag.com



Contest Calendar December 2001 - February 2002

Dec 15-16	ARRL 10 Metres Contest (CW/SSB)
Dec 15-16	10 Metres SWL Contest
Dec 15	OK RTTY Contest
Dec 15-16	Croatian CW Contest
Dec 15-16	International Naval Activity (CW/SSB)
Dec 26	Ross Hull Memorial VHF begins (CW/SSB/FM) (to Jan 13, 2002) *(Dec 01)*
Dec 29	RAC Canada Winter Contest (CW/SSB)
Dec 29	16th Internet CW Sprint Contest
Dec 29-30	Original QRP Contest (CW)
Dec 29-30	Stew Perry 160 Metres DX Challenge (CW)

Jan 5-6	ARRL RTTY Roundup
Jan 12-13	Summer VHF Field Day *(Dec 01)*
Jan 11-13	Japan Intl DX 160m - 40m (CW) *(Dec 01)*
Jan 20	HA DX Contest (CW)
Jan 25-27	CQ 160 Metres Contest (CW)
Jan 26-27	REF Contest

Feb 2-3	Ten-Ten Intl. QSO Party (SSB)
Feb 9-10	WW RTTY WPX Contest (RTTY)
Feb 9	Asia-Pacific Sprint (CW)
Feb 9-10	PACC Contest (CW/SSB)
Feb 16-17	ARRL Intl. DX Contest (CW)
Feb 22-24	CQ 160 Metres Contest (SSB)
Feb 23-24	REF DX Contest (SSB)
Feb 23-24	RSGB 7MHz DX Contest (CW)
Feb 24	High Speed Club CW Contests

Greetings to all contesters and readers!

CQ Contest Survey

In the August edition of CQ *Amateur Radio* magazine the results of a Contest Survey conducted earlier in the year were published. These make most interesting reading and I commend this article to you all (pages 88-90). I was quite surprised at some of the findings, as apparently was John Dorr K1AR who writes the column.

Some salient points from this survey are: average age 47.53 years; average contesting experience (in years) 18.78; most considered their stations ordinary, with emphasis on antenna switching and best use of SO2R (single operator two radios); favourite mode CW; average amount spent on contesting in last two years US$5386. Certainly most respondents were from USA/Canada, but responses were received from 30 countries, including one from VK. Do please look at this article for yourself.

Again I take this opportunity to enlist your support for the annual **Ross Hull VHF Contest** (see dates in Calendar). I think it quite likely that there will be some interesting openings, even allowing for sunspots having peaked for this cycle. And there is the rule about selecting your best group of days, so it's not a case of having to be there all the time. Let's hear from you this year!

Thank you all for your support during this year. I have not always been at my most efficient as regards some data processing and I promise to do better next year. However, I wish you all a very holy Christmas, happy holiday season and good contesting in 2002.

73, Ian Godsil

Results CQWW DX SSB CONTEST 2000

(VKs only Call/band/score)

Single Operator:

VK5GN	All	3,494,205	VK4UC	28	431,900
AX4EJ	All	1,203,124	VK8DK	28	100,362
VK1JDX	All	208,582	VK2HV	28	87,087
VK4DMP	All	137,367	VK2EM	28	45,990
VK2BCQ	All	89,474	AX8HZ	21	373,932
VK3OJ	All	49,692	VK4EMM	14	667,056
VK2ARJ	28	479,987	AX3TZ	7	36,096

Assisted:

VK6WR	All	83,385

Multi-operator Single Transmitter:

VK4WIL	All	2,278,500

Results CQ WW DX CW Contest 2001

(VK/ZL only Call/band/score)

Single Operator

VK5GN	All	1,270,698	VK6HG	28	17,520
VK2DPD	All	190,920	VK4EMM	21	815,850
VK4DX	28	638,950	ZL3JT	21	102,752
VK4UC	28	256,161	VK4XW	21	11,505
VK4TT	28	130,232	VK4XY	3.5	30,857
ZL1AIH	28	72,323	VK3TZ	1.8	12

Multi-operator Single Transmitter

VK8AR	All	28,017	(Ops VK8TM/TX)
ZL6QH	All	5,541,516	(Ops JH3KNW,ZL1AZE, ZL2BSJ)
ZL3CW	All	3,660,618	(Ops F2CW, JA4EKO)

Results ANARTS WW RTTY Contest 2001

from Jim VK2BQS

162 logs received, being 151 Single Operator category, nine multi-op and two SWL logs. Many thanks to all who took this trouble.

(World posi/call/score/awards)

Single Operator

1	VK2KM	19,782,336	1st World/OC/VK2
16	VK6GOM	7,306,740	1st VK6
30	VK4WPX	3,647,800	1st VK4
50	VK2SG	2,133,756	2nd VK2
109	VK2BQS	508,728	3rd VK2

Multi-operator

4	VK2RT	9,921,984	4th World, 4th OC/VK2
8	VK4DZ	1,063,140	2nd OC, 1st VK4

Summer VHF-UHF Field Day 2002

From John Martin VK3KWA

The next Summer VHF-UHF Field Day will take place on the weekend of January 12 and 13, 2002. The rules are the same as for the last Spring Field Day.

Please remember that I would appreciate comments on several questions I raised when publicising the rules for last November's Field Day. There are:

- Should the 24-hour single operator section be shortened?
- Should there be a six-hour multi-operator section?
- Is the scoring advantage of 'grid hoppers' too high?

I would be grateful to receive comments on these or any other points with your log.

Dates January 12 and 13, 2002.

Duration in all call areas other than VK6: 0100 UTC Saturday to 0100 UTC Sunday. Duration in VK6 only: 0400 UTC Saturday to 0400 UTC Sunday.

Sections

A: Portable station, single operator, 24 hours.

B: Portable station, single operator, any 6 consecutive hours.

C: Portable station, multiple operator, 24 hours.

D: Home station, 24 hours.

Single operator stations may enter both Section A and Section B. If the winner of Section A has also entered Section B, their log will be excluded from Section B.

If two operators set up a joint station, they may enter Section C under a single callsign, or sections A/B under separate callsigns. If they enter Sections A or B, they may not claim contacts with each other. Stations with more than two operators must enter Section C.

Tip of the Month

When you see the published results of a contest and find that your score is not the same as you submitted, do not be afraid to ask the Contest Manager for an explanation. Sometimes it may only be a simple arithmetical error, but often it is because of a difference in interpretation of a rule.

General Rules

One callsign per station. Operators of stations in Section C may not make contest exchanges using callsigns other than the club or group callsign. Operation may be from any location, or from more than one location. You may work stations within your own locator square.

A station is portable only if all of its equipment, including antennas, is transported to a location which is not the normal location of any amateur station.

Repeater, satellite and crossband contacts are not permitted. No contest operation is allowed below 50.150 MHz. Recognised DX calling frequencies must not be used for any contest activity. Suggested procedure is to call on .150 on each band, and QSY up.

Contest Exchange

RS(T) report, a serial number, and your four-digit Maidenhead locator.

Repeat Contacts

Stations may be worked again on each band after three hours. If the station is moved to a new location in a different locator square, repeat contacts may be made immediately. If the station moves back into the previous locator square, the three hour limit still applies to stations worked from that square.

Scoring

For each band, score 10 points for each locator square in which your station operates, plus 10 points for each locator square worked, plus 1 point per contact. Multiply the total by the band multiplier as follows:

6m	2m	70cm	23cm	Higher bands
x 1	x 3	x 5	x 8	x 10

Then total the scores for all bands.

Please use the following format for your table. In this sample the operator has operated from one locator and worked four locators on each band:

Band	Locators Activated (10pts ea)	+ Locators Worked (10pts ea)	+ QSOs (1pt ea)	x Multiplier	= Band Total
6m	10	+ 40	+ 40	x 1	= 90
2m	10	+ 40	+ 30	x 3	= 240
70cm	10	+ 40	+ 20	x 5	= 350
Overall Total					= 680

Logs

For each contact: UTC time, frequency, station worked, serial numbers and locator numbers exchanged, points claimed.

The front sheet should contain the names and callsigns of all operators; postal address; station location and Maidenhead locator; the section entered; the scoring table; and a signed declaration that the contest manager's decision will be accepted as final.

Entries

Paper logs may be posted to the Federal Contests Co-ordinator, 57 Nepean Highway, Aspendale, 3195. Electronic logs in ASCII format should be E-mailed to vk3vp@radiomag.com by Friday, 9 February, 2002. Early logs would be appreciated.

Ross Hull Memorial VHF-UHF Contest 2001-2002

From John Martin, VK3JWA

The Contest

The WIA maintains a perpetual trophy in honour of the late Ross Hull and his pioneering achievements in VHF and UHF operation. The name of each year's contest winner is engraved on the trophy, and other awards may be made in the various divisions of the contest. The contest is open to all amateurs.

Duration

0000 UTC Wednesday, December 26, 2000 to 2400 UTC Sunday January 13, 2002. In Eastern Summer Time, that is 11am on December 26 to 11am on January 14.

Sections

A. Best 7 UTC days nominated by the entrant.

B. Best two UTC days nominated by the entrant.

Entrants may submit logs for either section. The nominated

Japan International DX Contest 2002

LF CW: 2200z 11 Jan-2200z 13 Jan 2002
HF CW: 2300z 12 Apr-2300z 14 Apr 2002
PHONE: 2300z 8 Nov-2300z 10 Nov 2002

Object is to work as many JA stations + JD1 islands as possible.

Bands: LF CW 160/80/40; HF CW 20/15/10; Phone 80-10 (no WARC). **Categories**: Single operator single/multi-band high power (more than 100w o/p); single operator single/multi-band low power (less than 100w o/p); multi-operator; maritime mobile.

General: Operate for maximum of 30 hours only and show rest periods in log; single op must perform all tasks himself; multi-op must remain on band for at least 10 minutes and during this time multi-op may transmit on another band only if new station is multiplier; ops may use spotting networks.

Exchange: RST plus CQ Zone number. JAs will send RST plus Prefecture number (01 - 50). Score on 160m four points; 80m two points; 40/20/15m one point; 10m two points.

Multiplier is total JA prefectures + JD1 islands worked (possible 50 per band).

Final Score: multiply total points by total multipliers.

Logs (one per callsign) must show times in UTC; exchanges; multiplier first time worked; duplicate QSOs shown as no points; rest periods clearly marked; use separate sheet for each band.

Send Logs and summary sheet to: JIDX Contest, c/o Five-Nine Magazine, PO Box 59, Kamala, Tokyo 144, Japan, by 28 Feb, 31 May or 31 Dec.

Logs may be submitted on 3.5-inch disk in ASCII with summary sheet, or by E-mail. For instructions send E-mail to <jidx-info@ne.nal.go.jp> with command #get jidxlog.eng or #get jidxlog.jpn

UTC days need not be consecutive. The overall winner will be the top scorer in Section A. If the overall winner has also entered Section B, his/her log will be excluded from Section B.

General Rules

One callsign and one operator per station. One contact per station per band per UTC day. Repeater, satellite and crossband contacts are not permitted. No contest operation below 50.150 MHz. Band plan calling frequencies should not be used for contest calls, exchanges, or liaison. A contest calling frequency of .150 on each band is suggested. All rulings of the Contest Manager will be accepted as final.

Penalties

Minor errors in distance estimates or calculations may be corrected and the score adjusted. Contacts made on calling frequencies will be credited if the entrant provides a satisfactory explanation of why it was not practical to use another frequency. Otherwise such contacts will be disallowed. Persistent unnecessary use of calling frequencies or false log entries will lead to disqualification.

Contest Exchange

RS (or RST) reports plus a serial number. Serial numbers need not be consecutive. For difficult propagation modes such as meteor scatter, exchange of a total of two digits is sufficient for a valid contact.

Scoring

For 2 metres and above, one point per 100 km or part thereof (ie up to 99 km: 1 point, 100 - 199 km: 2 points, etc).

For 6 metres only, contacts below 1000 km as above. Contacts from 1000 km to 2400 km, 2 points regardless of distance. Contacts over 2400 km, 20 points regardless of distance.

The band multipliers are:

6m	2m	70cm	23cm	Higher bands
x 1	x 3	x 5	x 8	x 10

Logs must cover the full contest period and contain the following for each contact:

- Date and UTC time.
- Station location (if operating portable).
- Specific FREQUENCY (not just band) and callsign of station worked.
- Approximate location or grid locator of station worked.
- Reports and serial numbers sent and received.
- Estimated distance worked and points claimed.

Separate scoring columns for each band would be helpful.

Cover Sheet

Logs must be supplied with a cover sheet containing:

- Operator's callsign, name and address.
- Station location (if different from the postal address).
- Section(s) entered, and a list of the UTC days to be scored.
- A scoring table set out as the example below.
- A signed declaration that the station has been operated in accordance with the rules and spirit of the contest, and that the contest manager's ruling will be accepted as final.

Deadline

Paper logs may be posted to the Federal Contests Co-ordinator, 57 Nepean Highway, Aspendale, 3195. Electronic logs in ASCII format should be E-mailed to vk3vp@radiomag.com by Friday, 9 February, 2002. Early logs would be appreciated.

Note on Calculating Distances

Absolute accuracy is not required. All you need to know is whether the other station is above or below the nearest multiple of 100km. An easy method is to use a compass to draw 100km circles around your location on a map.

Better estimates can be made from six-digit Maidenhead locators, using a computer program which is available from the contest manager. It can be obtained by sending an E-mail to the address given above.

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New blood?

Much has been written and much has been argued over the past twenty years about the future of amateur radio.

Looking back in old magazines at photos of amateur radio gatherings and comparing these to such photos in more recent magazines, it appears evident that we are indeed getting long in our collective tooth. New blood is needed. That is just about the only thing we agree on. But not only should this blood be new; it should be young as well. And so the great CW debate came into being…

CW was seen as the barrier to the young becoming interested in our hobby. It was too much trouble for them to have to learn Morse Code, it was said. Let's cut out CW and see masses of young people flock to amateur radio.

This was some twenty years ago. The SSB versus AM debate had just wound down and the new debate was embraced with enthusiasm. By the late 1980s the computer had made its inroads with internet and so on, making CW look even more redundant. "The young people shy away from amateur radio because of CW," went the cry. "They want digital modes to enable them to network computer systems through radio."

A no-code technician licence and a five words per minute novice licence had already been introduced but apparently failed do the trick. In fact, one 16 year-old pleaded for a retainment of Morse in licensing. He actually pointed to the fact that lowering the standards would not help, and that it was motivation which was needed. "It is the adults who do most of the anti-code griping," he added.

And, as the adults are the ones with power, CW was already doomed. Little by little, the stringent demand for CW capabilities was modified — first to five words per minute; then by being dropped altogether on any band, in many countries.

This is then meant to draw the young people away from the internet and into the hobby of amateur radio. But nothing is so simple. There is still the theory examination to pass.

There have been many suggestions on how to make the theory test more difficult to compensate for the loss of the CW hurdle, with complaints about the "dumbing down" of amateur radio licensing. To avoid this, one suggestion is an examination which "encompasses microwave technologies, ultra weak signal detection, digital signal processing/computer analyses and cosmology." A big step away from Ohm's Law, and not likely to pass muster if we are to attract all this new blood who are said to want instant gratification.

On the other hand, our esteemed Editor has suggested a no theory licence (*Radiomag + R&C* September 2001.) An interesting thought, but would it in fact attract all those youngsters who are said to be waiting in the wings?

All manner of clubs complain about the lack of youngsters in their midst; be it cycling, photography, model railways and so on, none of which require passing any sort of examination. It is now agreed among most radio amateurs that what is needed is *motivation*. We are encouraged to demonstrate and publicise the fun of amateur radio as distinct from talking on the telephone or surfing the 'net'.

While cell-phones and the internet have been featured *ad nauseam* in the general news media as 'must have' gadgets, radio as such has been left to wither. There are even people who believe that radio is not in use any more since we now have internet and cell-phones! It is only in the case of natural disasters which have disabled these innovations that radio comes into its own and there is a spark of interest among the general public, including young people. Some of these may even want to know both how it works and *why* it works.

The lack of amateur radio publications in libraries does not further our cause. There could well be someone with a fleeting interest in radio who goes to a public library to read more about the hobby, only to find that apart from a dog-eared ancient 'handbook' there is nothing on the subject at all. Internet and computer books are readily available, though.

To encourage those with a fleeting interest in radio, it therefore is important to distinguish between radio as an independent communications system and its use as just a wireless telephone service or internet link. There are things one can do with radio which cannot be done on the internet. Such as SETI for example.

During discussions about how to attract the young, SETI — the Search for Extra Terrestrial Intelligence — has been suggested as a possibility. "We need something more challenging than rag chewing on the bands, and SETI must surely fit the bill," said George W8QDX in a letter to *QST* last year. Lenny, WB2GFN was quick to respond, saying that as far as he was concerned, he would rather search the bands for ILOE — Intelligent Life on Earth! Maybe both these suggestions have a certain merit in the recruitment area.

Communications over vast distances have become quite ho-hum during the past decade. "You talked with Santa Claus on the North Pole? So what? I talked with a penguin on the South Pole!" No big deal. The mystery of it all has disappeared. And people do love mysteries.

It is not easy these days for film-makers to put a bit of esoteric excitement in their adventure yarns. There was a time when Dick Tracy's wrist-watch radio was the ultimate science fiction. But those days have gone. After all, all he did with it was to talk into it, and these days just about everybody can do likewise. And so the wheel is turning.

To be 'special' these days, Morse code serves the purpose. It even happens that film-makers get it right by borrowing a genuine operator to work the key with real words being keyed out while showing the actual hand on the key, bending at the wrist! The words may be gibberish, but that is usually because the director does not believe anybody can read Morse and the actual words are of no importance.

So there we have it. Now that Morse has been abandoned by commercial and defence interests, the only place to learn and use something 'different' is in amateur radio. Even if not a requirement for the licence, Morse code could in the end be the only thing which will attract new and young blood to the hobby of amateur radio. R

ON THE NET

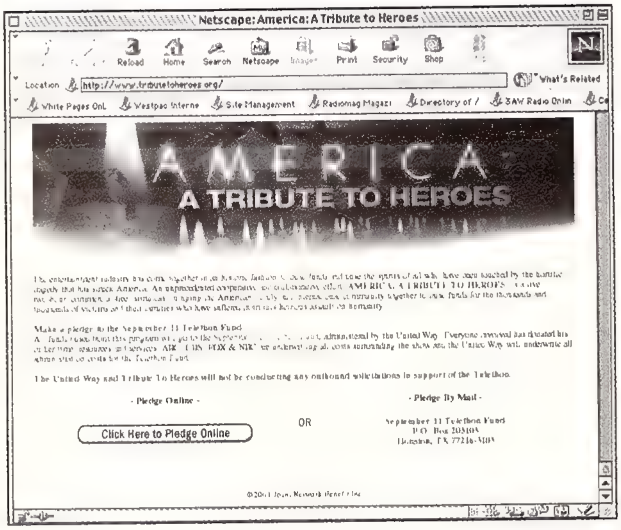
Attack on America, part II

I think I may now begin to understand what my parents felt and how they reacted during the attack on Pearl Harbor. These bastards may run, but they cannot hide forever. We continue to post items on our Weblog at **http://www.trsc.com/weblog/**. *(I highly recommend it! Ed.)*

Technology Lessons. In the two weeks after the attack, several technology trade publications affirmed our early observations (see *Attack on America*, Oct/Nov issue) that the Internet was a mixed bag. Internetweek (**http://www.internetweek.com/**) had a comprehensive review of the major Web sites, and it was not pretty.

- At 9 am CNN.com, ABCnews.com, NYTimes.com failed until late on 11 September.
- At 10 am FBI.gov became unavailable for at least 12 hours.
- At 11 am, when the airliners were identified, the Web sites of American Airlines and United Airlines became unavailable for at least six hours.
- At 12 noon, CIA.gov, FAA.gov, FEMA.gov experienced slow performance for the next 12 hours.
- On September 12, FAA.gov response time was measured at 104 seconds, FEMA.gov at 25 seconds.
- On September 13 and 14, NYTimes.com was still experiencing 50 to 100 second response times.
- On September 17, CIA.gov availability dropped to 66 percent and response time was 70 seconds.

The American Red Cross was so overwhelmed with donations that it was forced to close that aspect of its Web site, and at least six major portals (including Yahoo) with transaction-capability storefronts picked up work. Weeks after the disaster, the external services continued.



http://www.tributetoheroes.org/

Make a pledge to the September 11 Telethon Fund

The United Way and Tribute To Heroes will not be conducting any outbound solicitations in support of the Telethon.

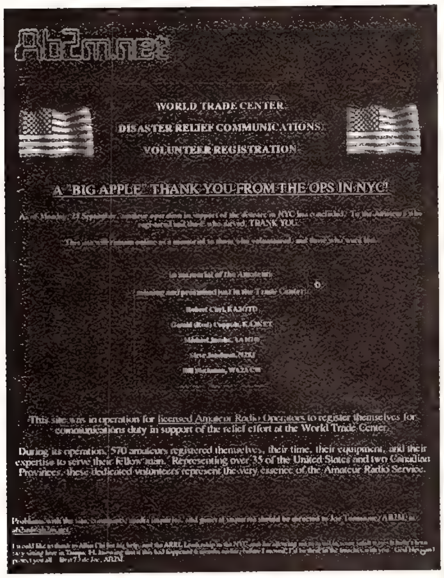
- Pledge Online -

Click Here to Pledge Online

OR

- Pledge By Mail -

September 11 Telethon Fund



WORLD TRADE CENTER

DISASTER RELIEF COMMUNICATIONS

VOLUNTEER REGISTRATION

A "BIG APPLE" THANK YOU FROM THE OPS IN NYC!

This site was in operation for licensed Amateur Radio Operators to register themselves for communications duty in support of the relief effort at the World Trade Center.

During its operation, 570 amateurs registered themselves, their time, their equipment, and their expertise to serve their fellow man. Representing over 35 of the United States and two Canadian Provinces, these dedicated volunteers represent the very essence of the Amateur Radio Service.

Writers for newspapers and technology trade journals clearly gave the breaking news advantage to television. Web sites simply aren't capable of handling high bursts of traffic, and there are now calls to re-examine emergency traffic loads as high as 10 times the previous all-time high. There should be plans to automatically tap into additional server and bandwidth capacity from others, and procedures (perhaps automatic) installed to strip graphics, personalisation and advertising from the Web site. Perhaps the fundamental design of Web sites should be changed?

At this same time, we read an industry story about Knight-Ridder. The company owns a number of newspapers with Web sites around the country.

A design firm hired to clean up the Web sites wound up producing 900 different templates for non-Web-savvy employees to use in posting news et al to their respective Web sites? Are you kidding? 900? Good grief!

While E-mail and instant messaging continued to work on the Internet, the wired and cellular telephone systems failed after the attack. Additionally, Verizon (the largest of the Baby Bells to come out of the AT&T court-ordered break-up years ago) lost at least a dozen cellular sites in lower Manhattan. Communications on consumer devices and government radio systems were chaotic.

The technology infrastructure and the bandwidth simply are not here, dear readers. Keep the portable radio batteries charged, build solar cell power packs, and get out the QRP CW rigs to maintain communications when everything else fails. (Yeah, CW, that obsolete communication methodology that takes a minimum of bandwidth and power to communicate around the world that most licensing authorities are dropping from amateur and marine license requirements. But that's another story…)

Articles in newspapers and stories on the radio reported such items as:

- On 12 September, The NYT sold more than 242,000 newspapers over its usual print run.
- An Albany, NY, map firm sold in one week more maps of Afghanistan and the Middle East than in the entire preceding nine months.
- Flag manufacturing companies around the USA have orders backlogged for two to three months; the Northern Hemisphere Fall is normally a slow sales period, and inventory is prepared for the July 4 holiday.
- At the end of September, the estimate to clear the site of rubble was a year!

And I appreciate the messages of concern and good will received from readers in the days following the horror. Two weeks after the attack more than 6300 people in New York, alone, were dead or missing, in addition to Washington and western Pennsylvania, and bin Laden will be called to account.

Build Your Skills in CW

This item was published in a recent ARRL newsletter: "*Radiotelegraphy reference available free via the Web: The third edition of The Art & Skill of Radio-Telegraphy by Bill Pierpont, N0HFF, is available free for the downloading from the Web* **http://www.qsl.net/n9bor/n0hff.htm** *in Word and in Adobe Portable Document Format.*

"This edition of the definitive international Morse Code reference is aimed at those interested in telegraphy, those wanting to learn it or to improve their skills or those who just plain love it.

"New material includes interviews with such well-known amateurs as former ARRL Communications Manager George Hart, W1NJM, the founder of the National Traffic System and still an active participant. There's also a special section by First-Class Operators Club member Jim Farrior, W4FOK, author of the well-known code practice program The Mill. From Fred Adsit, NY2V."

THE INTERNET, E-MAIL AND OTHER THINGS OF GENERAL INTEREST *By Thomas R. Sundstrom, W2XQ*

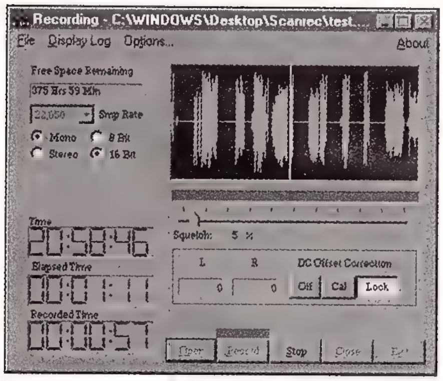
Scanner Recording

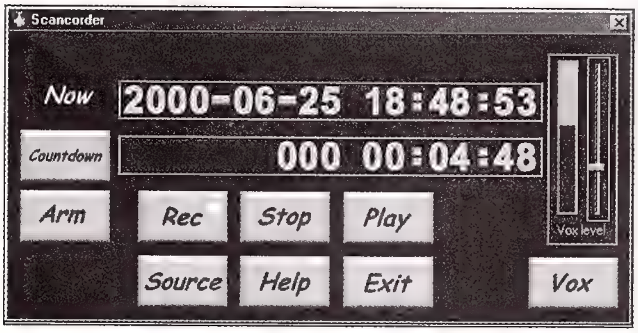
We ran across a relatively new Windows application that is designed to record audio from scanners. It is called "Scanner Recorder", and the price is right. It is a free 171-kb download, so I took a look. There is a squelch control, options to record in mono or stereo at various rates, and adjustments to dissipate any hum on the patch cord connection between the scanner and the audio input jack of the PC sound card.

I tried it using my Yaesu VR-500 handheld portable and it worked as advertised, stopping and starting as the squelch took hold. The surprise came upon playback. There is no capability in this version 1.8 to play back the audio file! So one must open the text log file in Notepad to read the record times and use Winamp (or whatever audio player is associated with WAV files) to play back the recorded audio. Perhaps audio playback will be in version 2 that the FAQ mentions is under development…

Get *Scanner Recorder* from **http://www.davee.com/**.

What are the differences between this program and *Scancorder* from Bev Ewen-Smith of COAA in Portugal? Aside from a purchase price of US$29, Scancorder is complete unto itself in that it plays files back within the program and automatically displays the actual time recorded. That's more convenient, in our opinion, than the free software.





Scancorder can also be set to start and stop recording based upon time settings, when you are not at the computer. But Scancorder doesn't have the various record setting options. So you make a choice by looking at the evaluation version of Scancorder as well.

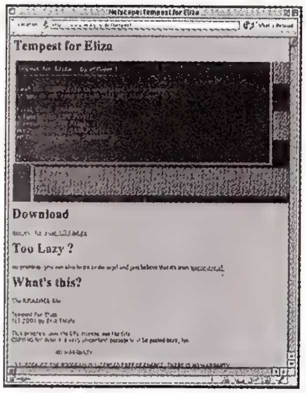
Get Scancorder from **http://ww.ip.pt/coaa/scancorder.htm**.

CB Radio Update

The Australian site DX Pacific, formerly at the URL of http://dxpacific.homestead.com/index.html, has recently moved to the new URL of **http://www.geocities.com/cq43ax101/**. The author 43AX101 now calls the site *South Pacific Calling* and dedicates it to the rights of the Australian Aborigine. Unfortunately the site is heavily laden with graphics — nicely done, though — but what is worse is that audio files requiring the 'Beatnik' plug-in play upon page loading. We'd prefer to see the audio offered as an option with a "play" button.

Tempest for Eliza

Erik Thiele of Germany has written an interesting program for Linux (and possibly other variants of UNIX). It's called *Tempest for Eliza* that uses your computer monitor radiation to send out AM signals on a shortwave receiver. You can listen to computer-generated music. There are numerous references for further reading and study. Honest, gang.



And for those who don't want to be bothered making this program work on a Linux system, there is a sample MP3 audio file to download. Tune to **http://www.erikyyy.de/tempest/** and have a read.

Federal News Radio

Do you work for an agency of the United States federal government within the distribution area of *Radiomag + R&C*? Since February 22, 2000, a Web-only streaming radio station targets the thousands of US government and military workers and those audiences that have regular dealings with the United States. Formally known as **WTOP2**, an offshoot of WTOP (AM & FM) Washington, DC, the Web station is now known as **FederalNewsRadio.com**.

The name change came about when E-mail started arriving from elsewhere on the planet, including the embassy in China. The station steams at 20 kbps in RealAudio and Window Media formats. Tune to **http://www.federalradionews.com/** and have a listen.

Mouldy oldies

Back in the pre-Internet, pre-Walkman era, it was communications of a different sort. Some of us listened to the little four-valve MW plastic radios and heard Rolf Harris, the Beatles, and Elvis come rattling forth from a small paper cone speaker. Let us all say the word 'distortion'. How many times did you hear Rolf or CCR sing 'Bad Moon Rising' and *swear* the lyrics were "there's a bathroom to the right?"

Mangled lyrics persist through the decades. The Bee Gees' *Saturday Night Fever* soundtrack included *More Than A Woman* and listeners have claimed to have heard 'four-legged woman', 'bald-headed woman', 'vanilla woman', 'strawberry woman', and 'poor little woman'. And there are thousands more.

The Internet has two very funny sites dedicated to mucked-up lyrics: **http://kissthisguy.com/** and **http://amiright.com/**. Enjoy.

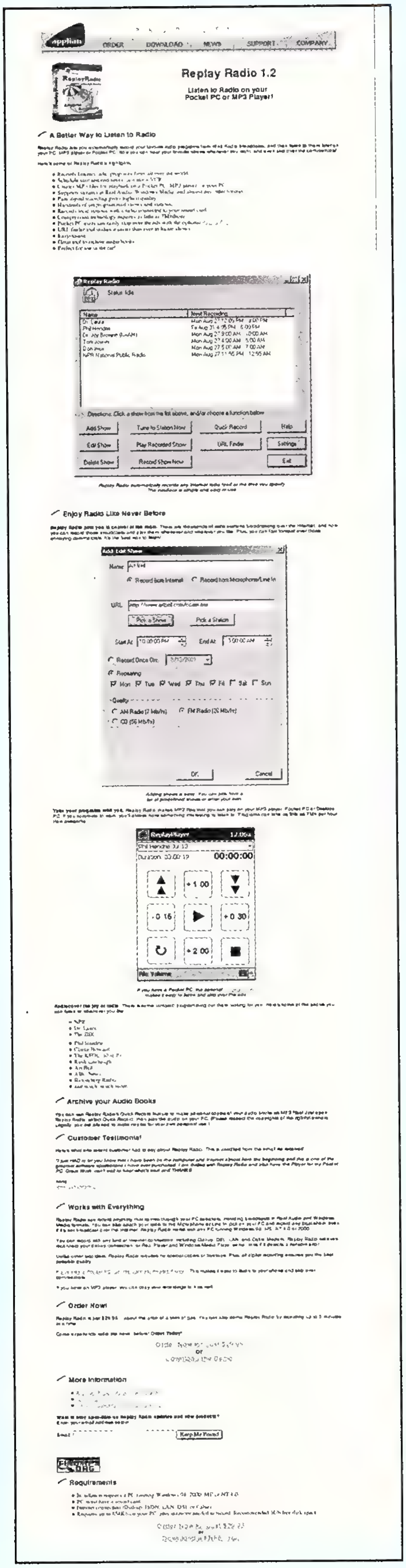
Radio Replay on a PDA

Since it appears that radio broadcasters like the BBC World Service no longer want to be radio broadcasters, alternatives to their alternative media become more important. This was posted in a newsgroup (author unknown).

"*While looking for software for my handheld Pocket PC PDA, I came across something that might at least be one way to overcome a couple of the main drawbacks of streaming media: the lack of portability and the fact that it's often not possible to simultaneously listen on streaming audio on the web and use the computer for other things.*

"*It's a software package for about $30 called* **Radio Replay** *made by Applian. It claims to be able to record Real Audio, Windows Media and other audio streams and*

ON THE NET



Replay Radio 1.2

Listen to Radio on your Pocket PC or MP3 Player!

A Better Way to Listen to Radio

Enjoy Radio Like Never Before

Archive your Audio Books

Customer Testimonials

Works with Everything

Order Now!

More Information

Requirements

save them as MP3 audio files that can be played back at your leisure on the PC, a hand-held PC or a portable MP3 player. It says it can record several hours, and at lowest fidelity only requires about 7 MB of disk space per hour. So for example one could record a couple of hours while away from the computer, and then listen to the recorded file later. Sort of like a radio.

"It's not like good old radio, and I haven't used it, so I can't vouch for it one way or the other. But it sounds interesting. Just wanted to point it out.

For more info visit **http://www.applian.com/pc/ReplayRadio/**."

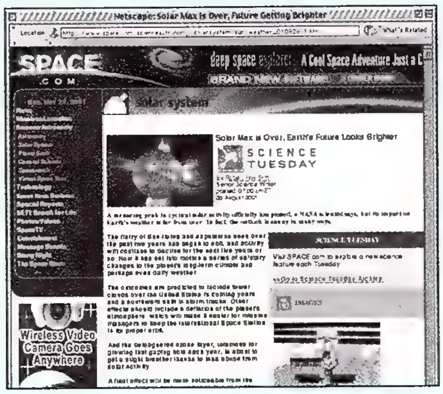
Public Radio Programming

Several of the newsgroups and mailing lists I read refer to public radio programs' scheduling, and Glenn Hauser always has such detailed scheduling information on his *World of Radio* show. The answer to the question "how" is now known. Everything you ever wanted to know is found at **PublicRadioFan**.

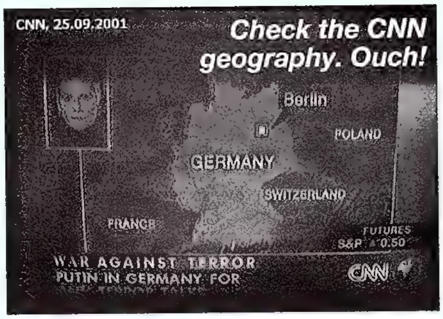
A bit biased towards the North American continent, there is still a good representation of the ABC, BBC and CBC as well. And there are links to any audio players needed. This really looks like the premiere site for pulling together all the public radio programming: **http://www.publicradiofan.com/**. One of the first things you should do is set your local time zone; time zones around the world are provided.

Solar Max is Over

Yeah, we knew that. The 6- and 10-metre bands are not open as many hours as they were a year ago. But space.com published an expanded story that also addresses climate changes. And there are numerous links to related stories, including the problems of satellite operators trying to keep their units operational. It is interesting reading at **http://www.space.com/scienceastronomy/solarsystem/sun_weather_010828-1.html**


Netscape: Solar Max is Over, Future Getting Brighter

Solar Max is Over, Earth's Future Looks Brighter



Check the CNN geography. Ouch!

US Satellite Radio Service Launches

XM Satellite Radio launched its 100-channel satellite subscription service on September 25. About 30 channels are commercial-free. The company suggests the wide range of programming that can be heard throughout the country — using ground-based transmitters to fill in the shadows around major cities — is the first major revolution since the introduction of the FM band in the 1940s.

General Motors has invested US$120 million in XM. Radios cost US$300, and the monthly subscription rate is US$10. Radios will be installed as optional equipment in some 2002 vehicles.

One news story says the Sirius Satellite Radio Service is due by the end of 2001, but the Sirius Web site shows the service to be operational in 2003. The monthly subscription rate is US$13. Sirius plans more commercial-free channels than XM. Ford Motor and DaimlerChrysler will make Sirius radios available in some 2003 model year vehicles.

There is separate BBC programming on the two satellite systems. One system will carry only BBC News and the other will carry the full range of BBC programming.

Will these satellite radio services fly? Both firms say they need four million subscribers to make a go of it. The short-distance commuter will probably continue to listen to the local radio stations with news, weather and traffic. The chat boards seem split on "it's the greatest" and "I like to listen to the variety of the local stations as I travel" with no one in the middle ground.

Read about XM at **http://www.xmradio.com/** and Sirius at **http://www.siriusradio.com/**. And watch the stock market gyrations of XMSR (a year ago, US$44, and now US$4) and SIRI (a year ago, US$60, and now US$4).

Let me know what you've discovered this month. E-mail me at **onthenet@radiomag.com**. Visit my Web site **http://www.trsc.com/**.

Ramping up the Internet

... an occasional series of hints and tips

Viruses continue to plague Internet users. Why bring this subject up again? Each day I typically receive about four E-mails containing the SirCam virus and other nasties, and attacks on the firewall attempting to penetrate the computer are unrelenting in the days following the release of a new gremlin. As we write this, McAfee (**http://www.mcafee.com**) updated its virus data file three times in the last five days! We hear people talking about Symantec's Norton virus' frequent updates as well.

Most of the newer viruses exploit the weaknesses in Microsoft Outlook and Microsoft Outlook Express, executing Active X or Visual Basic Scripting (VBS) to read and send an infected message to everyone in the Contacts (Address Book) file.

Other viruses hide themselves in the myriad files in the Windows directories, activating serial ports and waiting for further instructions to send denial of service (DoS) attacks against a particular IP address. SirCam, Code Red and Nimda are among the recent viruses set free upon unsuspecting users of the Internet. Vote was released just three days after Nimda, and on it goes.

We'll leave it to you to do further research on PC or Macintosh magazine Web sites, or Cnet or Ziff-Davis and the like. We cannot recommend a specific antivirus program. Specialist magazines and Web sites cover the subject matter in detail.

These are the steps I've taken on my stand-alone Windows 98 non-networked PC connected to the net by ADSL or a 56k dial-up line. Whether these are the right things to do or luck has dealt a good hand, and despite the accelerating virus and attack activity, no nasties have ever made it through to the PC:

(You may prefer to use different software than our choices below. Among the many information and magazine publishing sites, **cnet.com** and **zd.com** are two good sources for software reviews. Be sure to read user feedback, if available.)

- Turn off file and print sharing.
- Turn off Outlook's reaction to Active X and VBS components within messages.
- Install Cookie Pal cookie-trapping software and add Outlook as software to be monitored, particularly useful to negate surprises in HTML-formatted E-mail. (Whatever cookie trapping software you choose, it must have the capability of monitoring more than just the Web browser of choice.)
- Install ZoneAlarm Pro firewall software and set Security settings to Local: Medium and Internet: High. Not all programs need to act as servers; configure programs as appropriate. If you see high or odd outbound traffic indicated in the system tray when the PC should be quiet, investigate and use the STOP button to inhibit all data flow to and from the Internet.
- Install McAfee Vshield antivirus software and check for virus updates at least three times a week, or when an alert notice crosses the Outlook Inbox.
- Do not open file attachments from senders whose name/e-mail you do not recognise, or scan the attachment with the antivirus program before opening.
- Do not open file attachments or Web pages sent by unknown persons through the instant messaging program of your choice. If you accept a file, scan it before opening or executing.

These steps sound like a lot of work, but the software versions of today are fairly easy to install. Links to most of the vendor sites may be found under "Software" at **http://www.trsc.com/links.html**.

$1.5 Billion Worth of RF Spectrum

– Is it worth 17 cents a day to **YOU**?

The Radio Frequency spectrum is worth around one million dollars per Megahertz to commercial interests, and we Amateurs have the use of over **1.5 GHz** of it between 160 metres and 1.25cm – plus nearly 22 GHz more in the higher bands.

RF spectrum is in constant demand by commercial spectrum users.

Your Amateur licence fee does not guarantee you continued access to any of these bands, but for as little as ***17 cents a day***, you can help keep the Amateur Bands in Amateur Hands.

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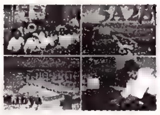
If the WIA isn't speaking for you, then who is?

Wireless Institute of Australia

www.wia.org.au

Ph: (03) 9528-5962
Fax: (03) 9523-8191

THE TX DX REPORT



Welcome all to December… so where did the REST of the year go? Things have been rather hectic on the bands the last couple of months, what with the CQ *World Wide DX Contest* and a couple of good operations from some Japanese operators in the islands. (See reports on that in the following columns!)

Things are also buzzing about CQ *Magazine* only accepting electronic logs for the last contest — maybe my prediction is coming true re electronic QSLing in the future, especially now with the scare on the mail in the USA… for that matter, right around the world!

That brings to my next issue, which is *who is responsible for making sure a QSO is logged correctly in a DXpedition log?* Have you ever experienced a "Not in the Log" QSO and tried to convince the QSL Manager or the station operator that in fact you *are* in the log!!

Much has been written about how to get into the log of a DXpedition, but less has been written about how to do it correctly. In case of the unthinkable "not in the log" who may have caused the failure, and what can be done to fix it, after the fact, if at all?

Take a case, say a DXpedition operator logs in VK2CO instead of VK2CA on SSB. Now what would happen is VK2CA would get a notification that he's "not in the Log". So CA would write or E-mail the QSL manager or whoever to find out what has happened.

Then the procedure would be to therefore to get a third party involved ie VK2CO, the station that was actually logged! In the worst case scenario, it may have indeed been VK2CO, and changing the log entry by one character may have caused a total failure — VK2CA may get a QSL for a QSO that was not his, with CO losing credit for his well-deserved contact.

So by getting VK2CO involved who certified in writing that he was *not* on the air at the time of the QSO, VK2CA was able to get his well deserved card. The lesson to be learnt is: **operating accuracy is the key objective for both parties!!**

There are a lot of factors to be observed about a DX contact, especially a rare DXpedition.

Often the DXpedition frequency is QRMed. The DX station may send CW relatively fast, and SSB contacts come fast and furious, which makes things all the more difficult.

The sheer excitement of 'the chase' can also be a source of failure. In many cases the excitement gives callers a feeling that "it sounded like my call sign" SO I just jumped the gun and quickly swapped a timely "5/9". DXers are believers by nature so, no doubt, anything similar to their calls may make them jump in and make a so-called contact.

The general idea is that the DXpedition operator is the one to make it all correct. He is sitting there on the watchtower, writing down the call signs as they come in.

But the truth is sometimes not exactly what it seems. Making a two-way QSO is actually a task for two parties. "It takes two to Tango."

So next time, listen very carefully to the DX station any DX operator worth his salt will *repeat* your call sign. The key word is LISTEN and then listen again. Do not assume that he has got your call correct — believe me, it's a hard job especially when you have tremendous pile-ups from Europe etc, and the deliberate QRM from idiots.

Don't forget to read next month's article on our Gabo Island activation. I for one would recommend any DXer go on a "mini" DXpedition to really appreciate what these guys are doing by getting that rare DX country for you hi hi.

Update on CQWW Contest

CQ CONTEST LOGS

Due to security concerns, CQ *Magazine* has asked that all participants in all CQ-sponsored contests to submit their logs electronically.

In order not to inconvenience amateurs who still use paper logs, the *CQWW Committee* has appointed a few individuals who will collect paper logs and mail them to CQ. One of them is a *CQWW* committee member, Paolo Cortese, I2ULY, whose address is PO Box 14, 27043 Broni PV, Italy.

Another interesting bit of information is that for the first time a "European Triangle" was set up for the contest.

It is often thought that working Europe was easy in the contest, however a group of serious contesters decided to run a single-op all band CQWW SSB effort from three different corners of Europe. They expect huge differences in their final tally, which will be published and analysed. This provided an opportunity to make some interesting observations on who was worked the most and by whom!

The three stations were: • CT7B Northern Portugal (Martti Laine, OH2BH) • OH0MM Aland Island (Ville Hillesmaa, OH2MM) • SV9CVY, Crete Island (Ben Och, DL6FBL)

Web sites for the results are: **http://dl6fbl/sv9cvy** and **http://qsl.net/ct1eeb**

INTERESTING CONTEST STATIONS…

9K9X (9K2HN) QSL via Bureau

E21, E20RRW and HS0XNO as **E21EIC** QSL via home calls, Thailand.

MJ0C (G3XTT) QSL home call, Jersey

GM0B (The Mid Lanark ARS) from Dunnet Head, the most northerly point in the UK. URL: **http://www.qsl.net/mm0bhx/gm0b/new-page-1index.htm**

HC8Z (HC1OT) from Isla Cristobal, Galapagos SA-004. QSL via NE8Z, Rick Dorsch, PO Box 616, Hamburg, MI 48139 USA.

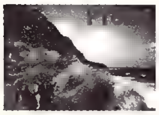
P40A (KK9A) Aruba SA-036. QSL via WD9DZV

RA0JJ as home call from Zone 19. QSL goes to Serge Smirnoff, PO Box 1, Blagoveschensk, 675000, Russia.

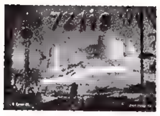
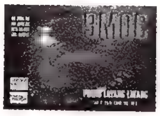
Conditions were excellent on the HF in CQWW contest going into the Contest, but the bands deteriorated by Sunday, The predicted planetary A index was about 41, which was pretty bad.

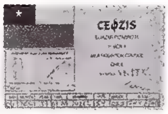
We hope you worked some of these interesting stations in the contest: **4L0G, 9M6A, 9M6TBT, CN2JS, CT9L, D44TC, E4/OE1GZA, IG9A, J3A, J49Z, J6R, FY5KE, MJ0C, OZ0KR, P40A, TI/N0KE, YN2EJ, ZF2MU.**

Also, check the *new rules* at **http://www.cqww.com**.



Compiled by Alex 'Tex' Ihasz, VK1TX E-mail txdx@radiomag.com



On contacts from VK1 area...

Hello everyone!

This is my about three-monthly 'go' at getting more people on low bands... or any bands at all, for that matter! Propagation this Saturday morning was terrific on 80m and on 40m and even better on 17m.

Between 1900z and 1930z this morning on the 80m 'DX Window' I worked 29 European stations in 16 countries from OH Finland in the north to ER Moldova, LZ Bulgaria and SV Greece in the south. It isn't like that every morning... but it is now and again!!

40m was full of European signals — hard to break into, but I did work among others a GU station in Guernsey despite his rain static. He was 59 here not long after dawn.

Thought I'd try 17m short path Europe and signals varied from 57 to 59+20dB until about 2040z with an enormous pile-up, including two long path from Brazil with one of them the strongest signal of the morning. All before breakfast! So turn on your rigs!

Regards, Mike VK1MJ

DX NEWS

Africa/Atlantic Ocean/Indian Ocean notes

Mauritius 3B

Jose, ON4LAC, is QRV as **3B/ON4LAC** until December 6 using mostly SSB, but also RTTY and PacTOR. QSL to home call.

Chad TT

Chris, **TT8DX** has been QRV on 17 metres around 1800z and 6 metres around 2000z. QSL via F5OGL.

Burkina Faso XT

The *Voodoo Contest Group* participated in the CQ WW DX CW Contest (24-25 November) as **XT2DX** (Multi-Multi) from Ouagadougou, Burkina Faso. Operators included G3PJT, G3SXW, G3XTT, G4BWP, G4IFB, G4PIQ and KC7V. QSL via G3SXW.

African Tour

Mike, DF8AN reports he plans to visit and operate from Kenya (5Z) on 2-5 and 15-17 November, Tanzania (5H) on 5-7 November and the Seychelles (S7) 8-15 November.

QSL direct to DF8AN either direct (Michael Noërtemann, Neustadt 18, D-37154 Northeim, Germany) or through the DARC bureau.

Cameroon TJ

Eduardo, EA2TV and Javier, EA2COL will be in Cameroon between 11 and 23 November, working on the installation of some VHF and HF stations in hospitals and missions in a project from "Radio aficionados Sin Fronteras".

During their spare time they plan to operate (mainly SSB with possibly some RTTY and CW) as **TJ2RSF**. QSL via EA4AH.

Burundi 9U

Ragge 'Gus' SM5DIC, went back to Burundi on November 16 for a period of approximately three months. He is using the same IC-706 as before, with a 3-element beam for 50 MHz. He plans to try out some EME with the 'big guns' with 400W and a single 17-element Long Boomer.

His activity will also be on HF bands as well, but only with wire antennas. Early on, the ARCT licensing bureau promised him they would renew his previous licence (**9U5D**) but I'd not heard any confirmation of that at press time.

QSL direct to the same manager as last time: SM5BFJ, Leif Hammarstrom, Lerklockan 4, SE-73091 Riddarhyttan, Sweden

Asia and Pacific

Samoa 5W

Bill, W7TVF is supposedly active from Samoa (OC-097) between 20 November and 10 December. The call was not known at press time, and had yet to be announced on November 23!

Operation will be on all bands from 160 to 6 metres, and the mode will be mostly CW.

Special attention will be given to Europe and Africa on the low bands during favourable greyline. Further information, including on-line log search, will be available at **http://www.air-internet.com/~w7tvf**

Kazakhstan UN

Alex, **UN7AB** has been QRV on 12 metres around 1700z.

Cocos Island TI9 (update)

You may want to check out the following Web page: **http://qsl.net/ti2hmg/cocos.htm**

The Web page contains some great photos and information on this island that belongs to Costa Rica.

The **TI9M** operation will take place February 17 and last for 12 days. A team of 15 operators will be active on 160-6 metres CW/SSB/RTTY.

East Timor 4W

Carlos, CU3FT is QRV as **4W/CU3FT** on all bands, especially the newer ones and 6 metres. QSL via CT1EEB.

Mongolia JT

Enk, JT1DA, is usually QRV on 12 metres between 0000 and 0100z.

South America - Caribbean

Netherlands Antilles PJ2

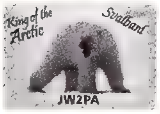
Peter, PA3CNX will be QRV as **PJ4/PA3CNX** until November 30. Activity is *now* on 80 to 6 metres using SSB, and on 10m FM. QSL to home call.

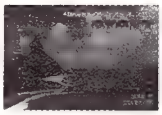
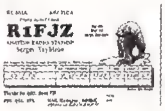
Dominican Republic HI

Julio, AD4Z/HI3K reports he is back home at **HI3K** and HI3J (his father's station) until 9 December.

He will operate on all bands, mostly CW, with an emphasis on 160 metres and the WARC bands.

Any arrangements for QSO will be welcome via E-mail to USA002@hotmail.com. Julio also participated in the CQWW DX CW and ARRL 160m Contests. QSL via AD4Z.



THE TX DX REPORT

Some useful addresses...

A50A	Bhutan Amateur Radio Club (BARC), PO Box 88, Thimphu, Bhutan
A92GM	Rev. Mike Mikstay, COMUSNAVCENT, Fleet Chaplain Office, FPO AE 09501-6008, USA
CE3WDH	Sergio Del Gaudio, PO Box 240-3, Santiago, Chile
CE6TBN	Marco Quijada, PO Box 1234, Temuco, Chile
CT1ALF	Francisco Felizardo, PO Box 45, 2501 Caldas da Rainha, Portugal
CT1EEB	José Emanuel Ribeiro de Sa, PO Box 79, 3860 Estarreja, Portugal
CT1ETE	Paulo Pinto, PO Box 1026, 4811-908 Guimaraes, Portugal
DL6FBL	Bernd Och, Chr.-Wirth-Str. 18, D-36043 Fulda, Germany
HA8IB	Karoly Szabo, Fuzesgyarmat, Aradi U. 42, 5525, Hungary
I1FNX	c/o Sezione ARI La Spezia, PO Box 45, 19100 La Spezia - SP, Italy
I1QOD	Alberto Frattini, Via S. Domenico 69, 17027 Pietra Ligure - SV, Italy
IK4XCL	Roberto Bellotti, Via G. Graziosi 6, 41100 Modena - MO, Italy
IK8PGM	Roberto Duca, Viale Europa 184, 80053 Castellammare di Stabia - NA, Italy
IS0A	PO Box 76, I-09000 Cagliari, Italy
IZ1DLV	Gilberto Bonasegale, PO Box 7039, 16148 Genova - GE, Italy
IZ8CCW	PO Box 360, 87100 Cosenza - CS, Italy
JA6VU	Masaaki Kano, 712 Kagami-machi, Yatsushiro-gun, Kumamoto 869-4203, Japan
JG7AMD	Yoshi-hiro Shoji, 168-5 Yokaichi, Odaki, Esashi, 023-1131 Japan
JH7OHF	Katsushi Ono, 15-10 Gamokotobuki, Koshigaya, 343-0836 Japan
JN1HOW	Toshihiko Niwa, 1081-8 Sakae, Kitakawabe, 349-1213 Japan
K2PF	Ralph Fariello, 23 Old Village Rd, Hillsborough, NJ 08844-4008, USA
KA9WON	Lonnie Miller, 12618 Thistle Ridge Close, Roscoe, IL 61073, USA
KC7V	Michael Fulcher, 6545 E Montgomery Rd, Cave Creek, AZ 85331, USA
KU9C	Steve Wheatley, PO Box 5953, Parsippany, NJ 07054-6953, USA
KW4DA	Dave Anderson, 712 Baneberry Court, Asheville, NC 28803, USA
LU5FC	Jesus Rubio, San Juan 2694, Rosario 2000, SF, Argentina
LU8DR	CRMMA, PO Box 47, 1722 Merlo, Buenos Aires, Argentina
NE8Z	Rick Dorsch, PO Box 616, Hamburg, MI 48139, USA
OZ1ACB	Allis Andersen, Kagsaavej 34, DK-2730 Herlev, Denmark
OZ5AAH	Ben Jakobsen, 9 Knoldager, DK-2670 Greve, Denmark
PA0MIR	Nico van der Bijl, Lepelblad 129, NL 1441 VH Purmerend, The Netherlands
PA3AXU	Gerard Dijkers, NAPO 550, 3509VP Utrecht, The Netherlands
RA0JJ	Serge Smirnoff, PO Box 1, Blagoveschensk, 675000, Russia
SP9FIH	Janusz Wegrzyn, PO Box 480, 44-100 Gliwice, Poland
ST2BSS	Khartoum Amateur Radio Club, PO Box 2, Khartoum Airport, Khartoum, Sudan
UA9ACJ	Henry Litvinov, PO Box 737 Snezhinsk, Chelyabinsk obl, 456775, Russia
UR5QBB	Roman Guzenko, Moskovska 42, Melitopol, Zaporizka obl, 72304, Ukraine
US7QQ	Anatoliy Karachanov, Dzerzhynskogo 412/42, Melitopol, Zaporizka obl, 72316, Ukraine
UX7QJ	Nikolaj Goenko, PO Box 30, Melitopol, 72311, Ukraine
UY5YY	Pavlo Guzenko, Moskovska 42, Melitopol, Zaporizka obl, 72304 Ukraine.
VE1JS	John Scott, General Delivery, Sandy Cove, NS Canada B0V 1E0
VE7XF	Ralph Parker, 5330 Wallace Ave, Delta, BC, V4M 1A1, Canada or PO Box 22, Point Roberts, WA 98281, USA
W3VPR	Arundel Radio Club Inc., PO Box 308, Davidsonville, MD 21035, USA
W7K	Radio Club of Tacoma, Box 11188, Tacoma, WA 98411, USA
WH6ASW	Ramon Fabree, PO Box 1693, Aiea, Hawaii 96701, USA
XW0X	Hiroo Yonezuka, PO Box 2659 Vientiane, Laos
YC9WZJ	Joni Salim, PO Box 127, Sorong 98401, Irian Jaya, Indonesia
YO2KAB	PO Box 100, 1900 Timisoara, Romania
ZK1CG	Victor Rivera, PO Box 618, Rarotonga, Cook Islands, via New Zealand
ZL3CW	Jacky Calvo, PO Box 593, Pukekohe 1800, New Zealand

Europe

Italy I

Operators from ARI La Spezia will operate special event station **IY1SP** until December 31 to commemorate Guglielmo Marconi's experiments in 1901 and 1931. IY1SP was active during the CQWW contests, the Memorial Marconi VHF and the Italian 40/80 metre contests. QSL via I1FNX.

Jan Mayen JX

Per, LA7DFA is active as **JX7DFA** for the next six months.

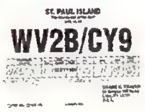
Future DX information

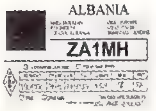
Niger 5U (update)

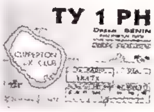
Paolo, I2UIY, says a web site has been created to support the upcoming DXpedition to Niger, due to take place in January and February 2002. The URL is **http://www.qsl.net/niger-2002/**

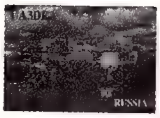
Niger DXpedition 2002

On the web page there is survey for the DX community to fill out to help them understand what bands/modes are needed. Additional information will be uploaded as soon as they get things finalised. Exact dates and call signs will be announced shortly.









Possible new entity? Ducie Island OC-182

The Pitcairn Island Amateur Radio Association has announced that all the planning has paid off — its operation from Ducie Island is on the air!

PIARA expected to be admitted as an IARU society on 16 November, and this operation celebrates that event.

The group is using a VP6 callsign, which was announced at the beginning of the operation (I haven't heard it yet), but it became operational at 0000 UTC on 16 November.

The group intends to provide contacts with as many different amateur radio operators as possible during its stay on the island.

The band plan is as follows: 21.020 MHz (CW) and 21.295 MHz (SSB) are QRV 24 hours a day.

However, 28.495 and 14.195 MHz are the prime SSB frequencies, and 14.020 MHz is the prime CW frequency (other than 15 metres).

There should be some operation on all bands, 160 through 6 metres, and RTTY in addition to SSB and CW operations.

It is expected that Low Band and WARC operations are more likely to take place in the last days of the operation, as the initial emphasis will be to allow as many operators as possible to work this rare IOTA and probable new DXCC Entity.

Antennas on 10 and 15 metres are a 2-element HB9CV, with a 4 Square for 20 metres, and wire and vertical antennas for the other bands. There is a 6 metre beacon on 50.110 MHz.

Operators are VP6TC, VP6DB, VP6BK/JA1BK, JF1IST, JA1SLS, K9AJ, K5VT and FO3BM. The pilot station is Dr Bill Avery, K6GNX, while QSL Manager is Garth Hamilton, VE3HO.

While stations who dupe the operation will not be black listed, it is recommended that once you hear your call coming back that you not work the station again on that band and mode so that others have an opportunity. Log checks will be available at **www.big.or.jp/~ham/DX.html**, although the site was not yet operational at the end of November.

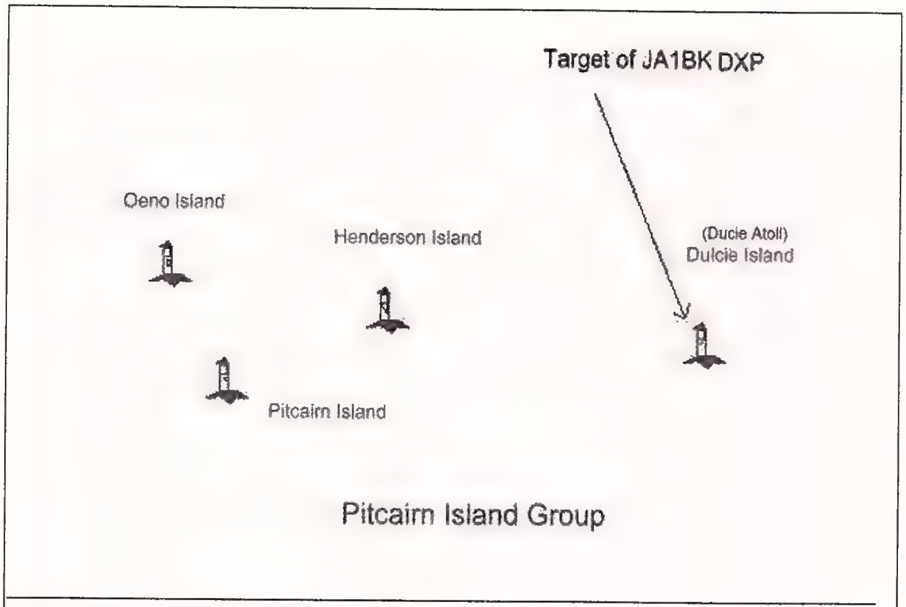
The Yaesu Division of Vertex Standard along with Create Electronics have provided support for this operation, although any donations will be gratefully accepted.

QSLs should be sent to the manager with an SASE or through the Bureau. However, please do not send a second request through the bureau after QSLing direct.

The ship departed 31 October from Papeete to Gambier with all antennas, plus 2 main radios (Yaesu FT-1000MP and FT-1000MP Mark-V), one main amp (Acom 1000 which includes the 6 metre band), two Robin and one Yanmar generators loaded on board. In addition, the team hand-carried four Yaesu FT-100D rigs.

All HF QSL requests go to VE3HO while all 50MHz QSL requests should go to JA1BK.

From Kan Mizoguchi, JA1BK/VP6BK



Pitcairn Islands - Island - Dulcie Island (Ducie Atoll) is a small, uninhabited island in the Pitcairn Island group. It is 540 KM east of Pitcairn, and is seldom visted by islanders. The island is 2.5 sq miles (6.4

DXCC News

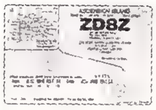
ARRL DXCC Manager Bill Moore, NC1L reports that OJ0VR (Market Reef) and HK5QGX/0M (Malpelo Island) have been approved for DXCC credit. The documentation has been reviewed and they are now okay. Anyone who has submitted them and had them rejected can contact DXCC to have their record updated without having to re-submit the card(s). Otherwise, they can be included with the next submission.

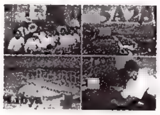
QSL via W3HC

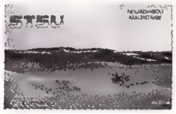
The following comes from Mac, W3HC (**http://macswitch.tripod.com/macsindexpage/**): "I will not accept any mail that does not have a return address on the envelope. Today alone I received 12 envelopes, both domestic and foreign, that did not have return addresses on them."

Well, that's it for another issue! I hope everyone had a great time with the recent CQWW Contest — it's amazing what comes out of the woodwork (or co-ax) when there is a contest on, especially on 10m. Thanks to all the amateurs out there who provided me with some of the Information, and, of course, thanks to all DX bulletins, eg ARRL, 425 DX, OPDX and so on.

May the DX be with you…! 73 Tex







On Climb

This month – Channels, RATs and more!

By Richard Fox
E-mail onclimb@radiomag.com

This month we will look at the major city airport frequencies and what has been happening with aviation in the last month. We will also look at airline safety and the 'rat' that has saved hundreds of lives and, last of all, military aviation in Afghanistan. Now down to business.

Whenever I start to monitor the aviation bands, my first stop is the local airport **ATIS**, or Automatic Terminal Information Service. The ATIS service gives quite a wide range of weather and airport information that in turn paints a mental picture of what the overall conditions are like at the airport for pilots.

ATIS is updated regularly as conditions at the airport change. If aircraft have reported that they have experienced wind shear or turbulence during finals or departures the ATIS broadcast will be updated with this information. As each broadcast is updated the broadcast identification is changed using the phonetic alphabet. An average ATIS broadcast sounds like this: "*Sydney Terminal Information Foxtrot. Expect independent visual approach, runway 34 left and right for arrivals and departures, parallel runway operations in progress, independent departures in progress, wind 110 degrees at six knots, temperature 24, QNH 1002. On first contact with Sydney Ground or approach, notify receipt of information Foxtrot. Time check 0252.*"

After you have found out what runways are in use you can start to monitor your standard ATC channels, such as the ground, tower, and departures frequencies. The list of frequencies below is just a starting point; there are many more active frequencies that are available at all these airports.

A good way to find all the active aviation frequencies around your location is to scan between 118 and 136MHz, using AM (Amplitude Modulation). This will cover all VHF air traffic control or ATC and airline company frequencies.

It is a good idea to write down all the active aviation frequencies around your location in a notebook and label what each frequency is used for and by whom. This way you have a better understanding of what your local ATC and airline company frequencies are used for.

If an emergency is declared at your local airport, or you want to track a specific flight, you will know what frequencies you should be monitoring.

So, as you can see, it is well worth having a good knowledge of who, what and where to get the best out of our great hobby.

Australian HF ATC / Flight Watch

Australia still maintains some HF ATC / Flight Watch channels in the more remote parts of Australia.

All of the frequencies which follow overleaf are operated in USB or Upper Side Band mode.

Airport channels

Adelaide

APP/DEP	118.200, 124.200
TWR	120.500
GND	121.700
ATIS	116.400, 134.500, 362kHz
Centre	125.3, 127.050, 128.600, 306.300
Qantas	129.500, 464.950, 484.550
Ansett	130.650, 464.200
Singapore	460.225

Brisbane

APP	124.700, 125.700, 125.600
DEP	124.350
TWR	120.500
GND	121.700
ACD	118.600
Fire	465.750
Helos	118.600
ATIS	113.200, 125.500
Qantas	129.500, 131.900, 484.550, 484.850
Ansett	130.600, 130.650, 130.950, 450.475,
Seaworld	165.220
Sunstate	130.250

Cairns

APP/DEP	118.400, 126.100
TWR	124.900
GND	121.700
ACD	121.700
ATIS	113.000, 131.100
FIS	124.000

Canberra

APP	124.500, 125.900
TWR	118.700, 243.000
GND	121.700
ATIS	116.700, 128.000, 263kHz
Qantas	484.550

Coolangatta

APP	123.500
TWR	118.700
GND	121.800
ACD	121.800
ATIS	112.300, 134.500
Lights	120.600

Darwin

APP	126.200, 134.100
TWR	133.100, 257.800
GND	121.700, 119.000
ATIS	112.600, 308kHz, 344kHz

Hobart

TWR	118.100
ATIS	124.300, 112.700
Qantas	129.500, 484.550
Ansett	130.600

Melbourne

APP	132.000
DEP	118.900, 129.400
TWR	120.500
GND	121.700
ATIS	132.700, 114.100
Qantas	129.500, 130.850, 132.650, 461.100, 463.300, 463.525, 465.625
Singapore	129.650, 466.625
Thai	130.000, 493.525
Cathay	130.050
Alitalia	131.900, 466.625
Garuda	462.975
JAL	467.025
All Nippon	130.050, 464.200
Ansett	130.600, 130.650, 461.425, 463.675, 470.175
Air Ambul	132.750

Perth

APP	123.700
DEP	118.700
TWR	120.500
GND	121.700
ATIS	113.700, 123.800, 272kHz
Centre	118.400, 118.600, 119.800, 120.000, 120.700, 121.200
Skywest	126.400, 128.800
Qantas	129.500, 131.900, 463.000, 464.950
British Air	493.000
Ansett	130.600, 130.950, 450.3500, 461.425, 463.675
Cathay Pac	131.800
Air Ambul	132.750

Sydney

Tower	120.500, 124.700
ATIS	126.250, 428kHz
Approach	119.450, 124.400, 128.300, 133.250, 135.900, 363.800
Director	125.300, 126.100,
Depart	118.400, 123.000, 129.700
Clearance	133.800
Ground	121.700, 126.500
Terminal	135.100
Ansett	128.800 130.600 130.950
Qantas	129.500 130.650 131.700
Virgin Blue	131.150
United	131.400
Air Ambul	132.750

As these frequencies are used in the more remote parts of Australia you may hear a farmer in his trusty old Cessna making a quick 500km dash to the local shop for bottle of milk or a QantasLink Dash-8 on climb out of Falls Creek. If you're into the HF bands, these channels are well worth a look!

Central Australia: 3452, 6541, 6604, 8843kHz
North Eastern Australia: 3452, 6610, 6616, 8831kHz
South Eastern Australia: 3461, 4693, 6580, 8858kHz
South West Australia: 3461, 4684, 6565, 8822kHz

Milspec Rodents

When an airliner loses an engine, even on a twin-engined airliner like the Boeing B777 the aircraft is not generally in danger of crashing. Twin-engine aircraft manufactures like Boeing and Airbus have to meet a requirement called ETOPS or Extended Range Twin Engine Operations. ETOPS means that if a twin-engined airliner loses an engine it must be able to fly safely on one engine for a set amount of time.

In the case of the B777, it can fly for 180 minutes on one engine. This means the aircraft is restricted to routes of 180 minutes maximum to or from the nearest runway that B777s can operate out of safely. The pilots will still have hydraulic and electrical control of the aircraft from the engine that is still in operation.

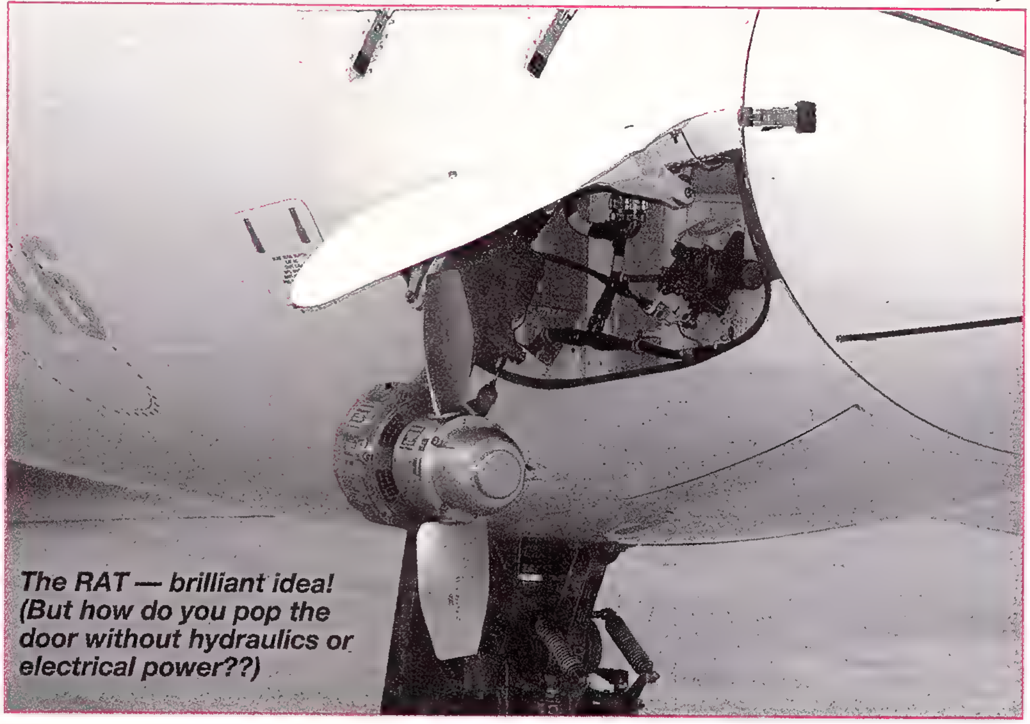
If the aircraft was to lose *all* engines (as happened early this year to a Canadian-registered Airbus A330) what happens then? Our airliner will have no power to control the aircraft's flaps, rudder, and other vital control surfaces. These days most new airliners use 'fly by wire' controls. If you have no power you have no control of the aircraft, and in the case of our Canadian A330 there were 200 plus lives that were in the balance. Luckily, there was a **RAT** — or **Ram Air Turbine** — on board the aircraft, as the airliner had to glide for over 17 minutes.

The RAT provides emergency and supplemental power for all types of aircraft worldwide. The RAT is deployed from the underside of the aircraft when all power and or hydraulic systems have failed due to the loss of one or all engines.

Most modern airliners today are equipped with a RAT system. The US Federal Aviation Regulation (FAR) and Joint Airworthiness Regulation (JAR) require that an aircraft be controllable following the loss of power from all engines. An emergency power source driven by a Ram Air Turbine provides the aircraft with the most efficient method to meet this certification requirement.

Pumps and generators driven by a RAT provide reliable emergency/back-up power for operation of critical flight controls and other essential functions on a wide range of commercial and military aircraft. The RAT can also be used to provide hydraulic and electrical back-up power, which is required for ETOPS.

It is not uncommon to see an airliner land with its RAT deployed as it is a regulatory requirement that the system be tested regularly. Our Canadian registered A330 landed safely after eight of the ten landing gear tyres burst on touchdown.



The RAT — brilliant idea! (But how do you pop the door without hydraulics or electrical power??)

US Military PsyOps

The US military has deployed the 193rd Special Operations EC-130 Hercules aircraft code named Commando Solo into Afghanistan airspace. The Commando Solo aircraft conduct psychological operations broadcast missions in the standard AM, FM, HF, TV, and military communications bands.

Two Secure Communications systems are installed in the aircraft. They consist of Raytheon ARC-164 UHF radios and Rockwell Collins ARC-186 VHF radios. The ARC-164 radios are used for air-to-air, air-to-ground and ground-to-air communications and are deployed on all US military aircraft. These radios provide anti-jam, secure communications links for joint task force missions.

The ARC-164 provides the ability to communicate with USAF, USN and NATO units in the UHF-AM mode which is the communications band for tactical air operations.

The ARC-186 will provide jam-resistant, secure VHF/FM/AM communications in the cockpit. Commando Solo utilises nine fixed antennas for transmissions and one adjustable longwire that can be deployed from the rear of the EC-130 in-flight for receiving capabilities. Radiation patterns of all antennas show signal strength greatest at points broadside to the aircraft, and nulls in signal strength at points forward and aft of the aircraft.

Missions are flown at maximum altitudes possible to ensure optimum propagation patterns. The EC-130s can be used in either day or night operations with equal success. A typical mission consists of a single-ship orbit which is offset from the desired target audience. The targets may be either military or civilian personnel.

Here is part of a script that was broadcast over Afghanistan recently. "*Attention Taliban! You are condemned. Did you know that? The instant the terrorists you support took over our planes, you sentenced yourselves to death. The Armed Forces of the United States are here to seek justice for our dead. Highly trained soldiers are coming to shut down once and for all Osama bin Laden's ring of terrorism, and the Taliban that supports them and their actions.*

On Climb

"Our forces are armed with state of the art military equipment. What are you using, obsolete and ineffective weaponry? Our helicopters will rain fire down upon your camps before you detect them on your radar.

"Our bombs are so accurate we can drop them right through your windows. Our infantry is trained for any climate and terrain on earth. United States soldiers fire with superior marksmanship and are armed with superior weapons.

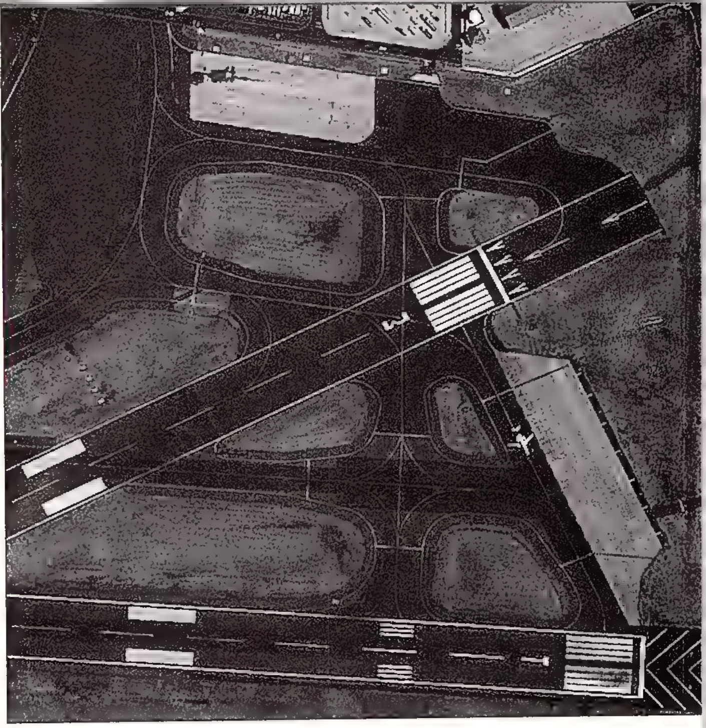
"You have only one choice: surrender now and we will give you a second chance. We will let you live. If you surrender no harm will come to you. When you decide to surrender, approach United States forces with your hands in the air. Sling your weapon across your back, muzzle towards the ground. Remove your magazine and expel any rounds.

"Doing this is your only chance of survival."

Air National Guard EC-130 aircraft (as seen above) flown by the 193rd Special Operations Group were deployed to both Saudi Arabia and Turkey in support of Desert Storm. The Commando Solo flight crews and their ground crews are men and women who have left their jobs as school teachers, factory owners and preachers. The 193rd is the USA's most frequently deployed Air National Guard unit. Its missions have included broadcasts of *Voice of the Gulf*, and other programs intended to convince Iraqi soldiers to surrender.

The 193rd has taken part in operations in Grenada, Haiti, the Gulf War, Somalia and Bosnia. Its "preparation of the battlefield" helped to minimise both enemy and friendly casualties by contributing to the massive Iraqi defections and surrenders.

The EC-130 was originally modified using the mission electronic equipment from the EC-121 aircraft, known at the time as Coronet Solo.



Soon after the 193rd SOG received its EC-130s, the unit participated in the rescue of US citizens in Operation Urgent Fury in 1983, acting as an airborne radio station informing those people on Grenada of the US military action. *Volant Solo*, as the mission was now known, was instrumental in the success of coordinated psychological operations (PSYOPs) in *Operation Just Cause* in 1989, again broadcasting throughout the initial phases of the operation to help end the Noriega regime.

EC-130 Specifications
Primary Function: Psychological operations broadcasts.
Contractor: Lockheed Aeronautical Systems Company.
Power Plant: Four Allison T56-A-15 turboprops with 4910 shaft horsepower per engine.
Length: 100ft 6in.
Height: 38ft, 3in.
Wingspan: 132ft, 7in.
Speed: 299 mph at 20,000 ft.
Ceiling: 20,000 ft.
Maximum Takeoff Weight: 155,000 pounds.
Range: 2100-plus miles.
Crew: four Flight Crew and eleven Communications Specialists
Air Force (ANG) Inventory: 6
Unit Flyaway Cost: More than A$140 million.
Date Deployed: 1992

For those of you who would like to hear what is being broadcast by the Commando Solo aircraft, have a listen on 8700kHz USB from 0030-0530 and 1230-1730 UTC. This frequency seems to be a feeder broadcast to the aircraft.

There is also some talk that the frequency may have a subaudible digital signal component. It is thought that the digital component may be used as a satellite back-up. This signal can be uploaded by military personnel on the ground in Afghanistan.

The location of the broadcast station is unknown at this time but it may be from Diego Garcia or Guam, as both locations are airforce bases. If you would like to get a QSL for the broadcast the PsyOps base is prepared to reply to reception reports of 8.7MHz.

Reports or cassette tapes can be sent to:

193rd Special Operations Wing, Chief of Public Affairs, Attn: Lt. Edward Shank, 81 Constellation Court, Middletown, PA 17057 USA

Tapes will not be returned.

Aviation Safety during October

Airline: Scandinavian Airlines System / SAS
Flight No: SK686
Aircraft Type: McDonnell Douglas MD-87
Engine Type: JT8D-217C
Aircraft Registration: SE-DMA
Serial No: 53009/1916
Delivery Date: 25/09/1991
Accident Date: 8-10-2001
Location: Milan, Italy
Time: 0814 Local Time
Airframe Hours: 25573
Airframe cycles: 16562
Total Fatalities: 114
Flight Phase: Take-off

The SAS MD-87 flight SK 686 jet (bottom pic) bound for Copenhagen was carrying 104 passengers and six crew. The jet was accelerating down the runway at 8:14 am when it hit a Cessna aircraft carrying four people. All on board both planes were killed. Visibility was reported to be poor at about 70 metres and the surface movement radar was unserviceable at the time. The control tower is located about 580m from the runway intersection where the collision occurred, so the tower controllers were not able to establish visual or radar contact with the Cessna. Four cargo handlers in a baggage zone that was hit by the MD-87 jet are still missing.

Airline: Siber Airlines
Aircraft Type: Tupolev TU-154M
Aircraft Registration: RA-85693
Serial No: 90A-866
Delivered: 1990 to Aeroflot
Airframe Hours: 16,703
Flight Number: 1812
Crash Location: 114 miles off the coast of Adler, Black Sea, Russia
Flight: Tel Aviv - Novosibirsk
Flight Phase: Cruise
Date: 4-10-2001
Time: 13.44 Local Time
Total Fatalities: 78

The Russian chartered jet shown at left was heading from Israel to Siberia when it exploded, crashing off the Black Sea coast with 78 people on board. There is speculation that the aircraft may have been shot down by a Ukraine anti-aircraft defence corps SAM or Surface To Air Missile fired during annual military exercises on the Black Sea. The Sibir airlines plane was flying at FL360 or 36,000ft, from Tel Aviv to Novosibirsk Siberia, when it blew up in mid-air in the region of the military exercise, killing all 78 people onboard.

Well, that's it for this month. Please feel free to E-mail me or write and tell me what you would like to see in the column as this is *our* column! 73s Richard

Radiomag dot com
THE REAL MAGAZINE FOR RADIO ENTHUSIASTS

Classifieds...

FREE! NO CHARGE!

ADVERTISE YOUR RADIO GEAR IN *RADIOMAG + R&C* ABSOLUTELY FREE!

GET RID OF THAT OLD EQUIPMENT YOU NO LONGER NEED WITH THE BEST CLASSIFIED DEAL OF ALL — PRIVATE RADIO ADS ARE RUN FOR NO CHARGE NO MATTER HOW MANY WORDS!*

Mind you, the Editor's generosity isn't likely to extend to used mothers-in-law. These pages are for *radio and associated equipment only*! Amateur gear, CB radios, scanners, antennas, computers, wanted or for sale items, power supplies… it's all fair game. Note our policy, however, that readers who do not hold an amateur qualification may not advertise to purchase amateur transmitting equipment.

So dust off that old relic and get busy with the pen! Advertisements submitted by fax or mail must be clearly PRINTED. Please read and note the conditions opposite.

*Readers of **RADIOMAG + R&C** may use the **CLASSIFIEDS** column absolutely free! This offer applies only to private 'For Sale' or 'Wanted' classified listings for scanners, amateur or CB transceivers, receivers, antennas and masts, components, books and mags, computers, software or peripherals, and other hobby communications equipment.*

Your advertisement's inclusion cannot be guaranteed, but every effort will be made to place your advertisement in the issue following receipt of copy. The publisher reserves the right to amend or reject any advertising material considered unsuitable for publication. Unsuitable material includes but is not limited to "wanted" advertisements for amateur transmitting equipment where no valid amateur call sign is shown, amateur equipment modified for general coverage transmit.

If in doubt, phone us. No correspondence will be entered into.

*Advertisements for **commercial goods or services** will not be accepted for publication in these classifieds pages. This classified section is for **private sales/purchases** only. **Electronic submissions are preferred.** Go to **http://www.radiomag.com** and follow the link.*

For details of display advertising elsewhere in the magazine, phone David Jones, on (07) 3881 0988

*Classified telephone inquiries: Chris Edmondson (07) 5545 0666. Send your E-mail or clip this form and post it to **Radiomag Classifieds, PO Box 123, Eagle Heights, Queensland 4271** or **fax (07) 5545 0622***

* Physical size limits apply. If in doubt, contact the Editor on the above number.

Sample: YAESU	FT-1000D	HF	XCVR.	PERF
COND,	$5500.	CHRIS,	VK4AA	(07) 5545 0666
Your ad:				
Contact phone				
Your E-mail address				

*Deadline for **January** edition: Friday, December 21*

BELOW IS NOT FOR PUBLICATION, BUT THE DETAILS MUST BE COMPLETED OR YOUR CLASSIFIED *WILL NOT RUN*

Your name: ________ *Amateur call (if any): VK* ________
Postal address: ________ *Phone contact*: (   )* ________
________ *State* ________ *Code* ________
Your signature: ________ *Today's date: /   /* ________

* This number is for the editor's use only, to check any details. State if business or after hours number, and write it **clearly**! This is *NOT* for publication!

Classifieds...

CAVEAT EMPTOR — BUYER BEWARE

*The acceptance of classified advertisements in the **Radiomag + R&C** classified advertising section does not warrant in any way that the goods offered are available, free of any encumbrance, in working order or otherwise satisfactory. The purchase of goods by private sale does not offer the purchaser any protection under law, and buyers should be certain the goods under consideration are suitable for the purpose for which they are required. **Radiomag + R&C** cannot accept any responsibility for goods advertised in the classified pages and no correspondence will be entered into regarding such goods. **The onus is on you...***

- **A-band** radios: a quantity of Motorola Syntrx multi-channels, Motorola Radius MIZO, Phillips FM828s, Midland 70-340B, Phillips FM900s, Tait T-198. Various **E, T, U + W1** Band radios also avail. Make an offer on any or all. Andrew (08) 8555 1531 or 0408 551 534
- **Alinco** DJ-G5 twin band HT. Good cond with leather case, dry cell pack and high gain dual-band ant, $450ono. **Philips** PRM8030 remote xcvr, tuned for UHF CB. Outstanding perf. This rig is no toy! $500 no offers. Phone for further details and programming options. Phil, VK2TPH (02) 42613666 or 0427 449 041 or vk2tph@bigpond.com
- **Alinco** DJ-X10E wideband scanner, as supplied, in VGC. With spare batt pack & chrgr. Heaps of useful freqs already prog. Cons reas cash or swap offers. Wayne (02) 4933 9347 or pickmey@yahoo.com
- **Alinco** DR-605E dual-bander, new cond $590. **Alinco** DJ-480TAS UHF HT, new in box $500. Also AAA batt case for DJ480 h/held $20. Andrew 0409 156 624
- **Antenna** model AM-42 Beta match, dismantled and ready to go. Owner moving house. Full directions incl, $50. Peter, VK6AST (08) 9454 6877
- **AOR**-AR8000 h/held scanner, exc cond, $400 in box. Joseph (02) 4296 3008 or jnagy@ezy.net
- **Barrett** 950 HF SSB xcvr, comp with auto tune ant etc, as new $2500. Vic, VK2BVF (02) 4471 1015
- **Codan** 9323 HF xcvr with auto tune ant, exc cond, $2300. Neville (03) 5687 1276
- **Computer** FM radio card, never used, comp with cables, ant and s'ware. Easy to install. Req spare ISA slot. $25. Peter 0412 722 539 or peter@melbpc.org.au
- **Deceased Estate: Kenwood** TS-130S HF xcvr with manual, mic and very well made 20A pwr supp (metered, over-volt prot) $450. **Kenwood** AT-250 auto ATU $200. **Icom** IC-2GAT 2m HT with batt and chrgr $150. **TET** DX-433 DX tri-band ant $200. All items in exc cond. Gerry, VK2BMZ (02) 9869 2498 or mmcc@tpg.com.au
- **Deceased Estate: Kenwood** TS-850S all mode base HF xcvr, tested ok by dealer. With SP-31 spkr, Kenpro KR1000S rotator, Shure desk mic, all mint cond. $850 ono Cost $3700 new! David (07) 5528 8227 or 0404 20 9092 or fomancho@hotmail.com
- **Deceased estate: #1** Yaesu FT-1000MP HF xcvr with SP-8 ext spkr, MD-100 desk mic, YH77sta headphones, mint cond, orig pckg $3300. **#2** Tiltover tower, Kenpro KR-400RC rotator, Cushcraft A3S beam $500. **#3** Pwr supp 13.8V 30A $250. **#4** Kenwood TM-221A 2M xcvr $100. Carsten, VK4OA (07) 3264 6443 or 0419 966 111 or pedersen@powerup.com.au
- **Deceased estate**: Kenwood TS-180S and op manual, Washington base station, Kraco base station, Cobra 138 with extras, Commander rotator with control box, pwr supp and spare rotator (needs atten). Peter (08) 8658 1436
- **DSE** K6349 6m 100w kit linear amp. All components soldered to PCB, needs two MRF492 and heatsink to compl $120. Joe 0407 869 759 or j_f3@telstra.com
- **Dummy** loads 50Ω 25 Watt (conservative) good to 1GHz, ex-Telstra $20 incl post. Goulburn Amateur Radio Society C/- David, VK2BDT (02) 4821 5036
- **Icom** IC-22S 2m FM with freq exp unit $150. **Icom** IC-502 6m SSB 50-51 MHz mod to 10w out $150. **Phillips** 91 with remote head, CB Chs 1-40, rptrs 41-48, no mic $120. Eqpt rack, 6ft high, RME EX-B/C 19-in, 16-in deep with AC dist panel, side-panels and rear door $150. Ken VK2YKM A/H (02) 6644 9944 or B/H (02) 6642 2766
- **Icom** IC-40S 40ch UHF CB $300. **Phillips** FM93 programmed in CB band $100. Clayton (03) 6228 0443 or 0417 529 644 or clayton_5@telstra.com
- **Icom** IC-745 HF xcvr with gen cov rcve. Good wkg ord $500 ono. Dale (03) 5152 5620 or shorty77@hotkey.net.au
- **Icom** PS-15 20A pwr supp, exc cond $195. Paul, VK3DA (03) 5983 1771
- **Kenwood** TS-430 HF xcvr with all filts, FM board $500. **Kenwood** TS-440 HF xcvr $1050. **Kenwood** TS-680s HF + 6m xcvr $700. **Kenwood** TS-50 HF xcvr $1150. **Kenwood** TS-751 2m all mode $450. **Icom** IC-3200 dual-band FM xcvr $300. Freight paid VK. Glen (02) 6254 8002
- **Kenwood** TS-520S HF xcvr $250 with ext VFO. **Yaesu** FT-23R 2m HT good order, offers? Ian, VK2AVS (02) 6672 2462
- **Kenwood** TS-711A 2m all-mode xcvr, VGC with op & svc manuals, hand mic $600ono. **Icom** IC-R7100 VHF/UHF comms rcvr, as new cond with orig box and op manual etc $1200. Damien, VK3RX (03) 5427 3121 or vk3rx@arrl.net
- **Kenwood** TS-930S HF xcvr with auto tuner, mtchg SP-930 spkr/filt unit, plus 10A 13.8V pwr supp for VHF gear etc. $1000 the lot, all in exc cond, or swap for Kenwood TS-50. **AEA232MBX** multi-mode TNC with books and Pakratt software, as new in box incl all connections to set it up $140.

Valves: new QB-3-300 finals, boxed $50. John, VK2AVE (02) 4294 8060 or janbus@wollongong.apana.org.au

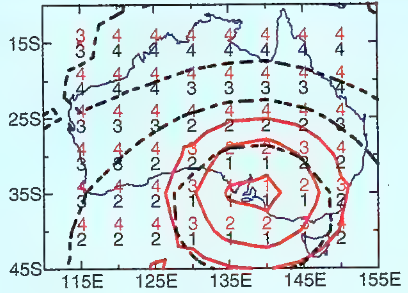
- **MFJ986** ATU 3 years old in VGC, $450 ONO. Jim, VK3NR (03) 9367 6920
- **Philips** FM92, 2M mods $100. Solid-state 70cm linear amp, VHF Engineering BLE 10/80, 10w in 80w out $220. SOTA 70cm xverter, 432-436MHz to 10m IF, 10W out $180. VK5EME AO-40 S-Band down conv, 2m IF $120. Phil, VK6APH (08) 9245 2973 or vk6aph@radiomag.com
- **Philips** PRM8040 U/W 450-520 MHz UHF 200 ch with s'ware & DTMF mic $970. **Also**: mint cond PRM8040 UW UHF $850. FM900 CTCSS enc/dec unit $20. **GME** TX4000 & TX4200 manuals $18ea. **Yagi** 3-el for HF CB new $70. Two small matching scrambler units to fit any radio, even HTs, new in orig pckg incl instr $170 both. Two SelCall HT units CCIR 5-tone $40. Mick 0438 905 284 or nissan@dragnet.com.au
- **President** HR2510 11m SSB/AM CB, up/down mic, mtg brkt, serviced $385. **Messenger** 125 watt HF linear with RX preamp $229. **MFJ** Signal Enhancer & filter $149. **Messenger** 500 watt HF linear $995. COD okay. Richard, VK3MDD 0414 771 101
- **Radio Shack**: IFCO portable building, only 2 years old, in perf order. Fully decked out inside with polished timber bench-tops, air-cond, electrical sub-board and security grills etc. $6500 ONO. Selling due to moving QTH. Rob, VK2XZ (02) 4884 4213 or rob_vk2xz@hotmail.com
- **Ramsey** Com3 service monitor. 1000MHz sig gen, meas deviation, freq, CTCSS tone, off-air rcvr. Needs some repairs. With svc manual. $495. Ian, VK2XTG 0411 244 880 or iael@shoal.net.au

All phone numbers are after hours unless otherwise noted

More on Page 80 ⇨

PROPAGATION

ADELAIDE



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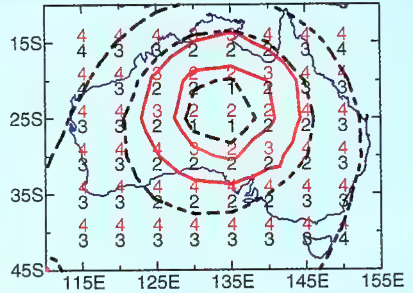

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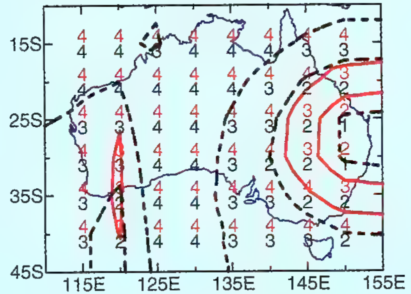

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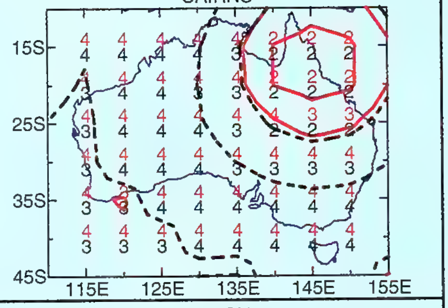

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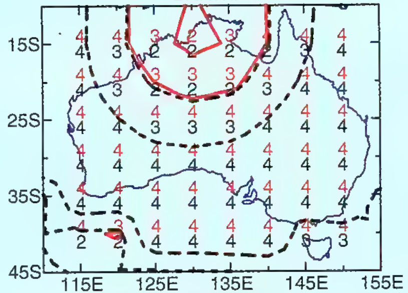

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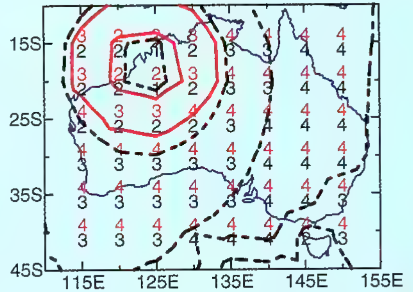

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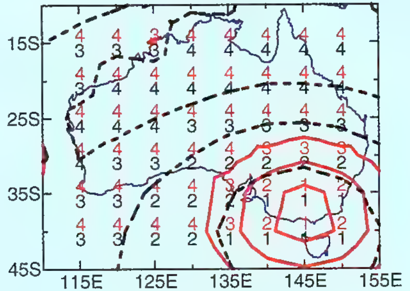

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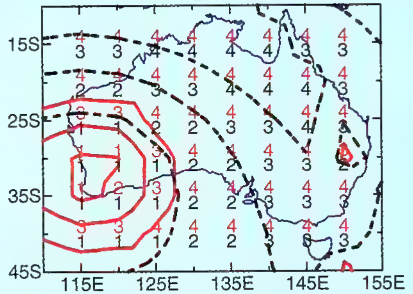
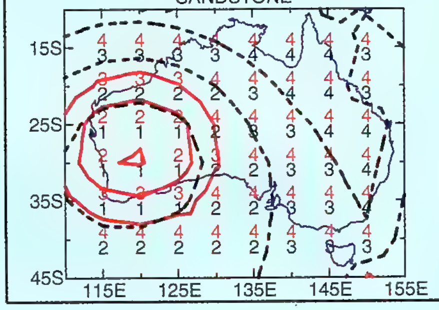
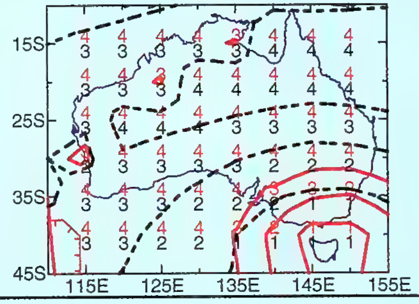


SANDSTONE



ST. MARYS



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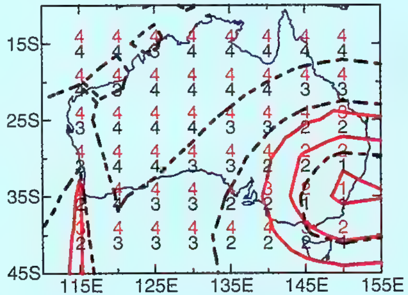


ABOUT THESE CHARTS

The data on these pages are graphs showing forecasts for expected HF operating conditions both with Australia and between Australia and a number of important overseas destinations. The information they contain is prepared by **IPS Radio and Space Services**, a division of the federal Department of Industry, Science and Resources. IPS monitors changing radio conditions — which are affected most greatly by fairly predictable changes in solar activity — and issues reports and warnings based on that data.

Left-side charts:

The charts on the left show the best day and night frequencies for HF communications between given areas and any location within/near Australia. Most of the chosen locations host VKS-737 base stations. The numbers on the charts correspond to VKS-737 channels, which are listed below. We know that, in general terms, we use the lowest frequency possible. ***The optimum day-time channels are shown in red, and the night-time channels in black.***

To use the chart, simply determine your location on the map, then select the day-time or night channel that is printed at that point on the map for communications with the base station or other stations in that area. For sunrise/sunset periods, you may need to try a channel that is mid-way between the day-time and night-time channels shown.

Amateurs will find the charts of equal use. Obviously, if the best channel is 8022 kHz, you'd use 40m, and so on. The VKS-737 channels are: **Ch1**: 5455 kHz; **Ch2**: 8022 kHz; **Ch3**: 11,612 kHz; **Ch4**: 14,977 kHz; **Ch5**: 3995 kHz. Note that the channels are slightly out of order frequency-wise...

Right-side charts:

The data on the right hand page is specifically aimed at Australian radio amateurs keen to work overseas DX stations. The data covers all HF frequencies and extends to include the 6m amateur band. The charts on the right cover stations in all parts of Australia, and should also give New Zealand stations a reasonable idea of their propagation as well.

The horizontal axis of each graph represents the hour of the day expressed in Universal Co-ordinated Time or UTC ('z'). The vertical axis shows the entire HF spectrum with a horizontal line representing each HF amateur band.

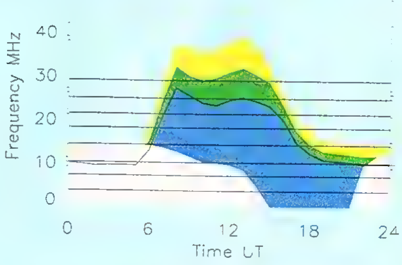
The maps are easy to read. First go to the map which looks closest to the area in which you are interested. Look up from the time and across from the frequency to the point at which the two variables merge. Note which colour scale — if any — appears at the intersection of the particular time and frequency combination for that area and refer to the legend (right) to find the sort of propagation most likely to apply. If the space is blank the forecast is not good — your time and frequency combination is unlikely to allow communication to the destination station. The main thing, then, is this: when reading the charts, if a particular frequency band is indicated as not propagating, try a frequency that the charts suggest as being more suitable.

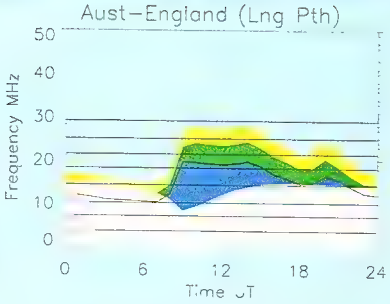
Your questions, comments, requests or recommendations about these charts are welcomed. Please write to the Editor, Radiomag, PO Box 123, Eagle Heights, QLD 4271 or E-mail editor@radiomag.com

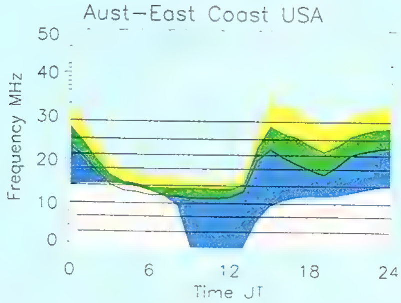
CHARTS DEC

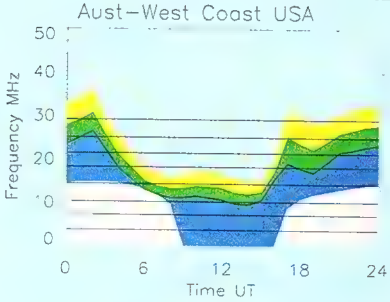
LEGEND

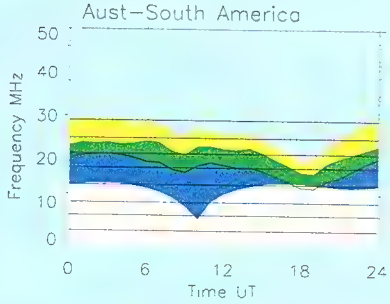
🟨	**UD**	Upper Decile — You have a 10% chance of getting through.
🟩	**MUF**	Maximum Usable Frequency. 50% chance to get through.
🟦	**OWF**	Optimum Working Frequency. 90% chance of a contact.
⬜	**ALF**	Absorption Limiting Freq. Lower limit of the usable band.

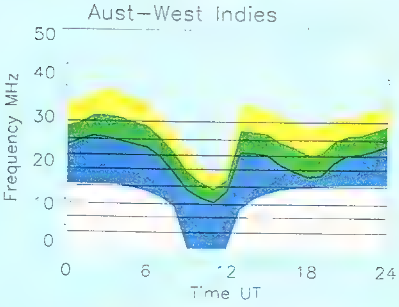


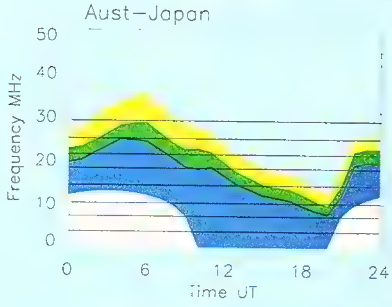


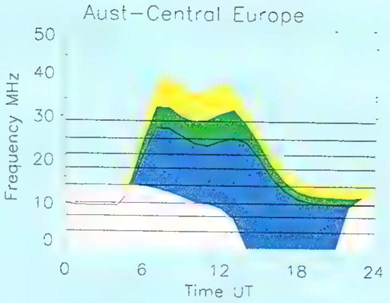


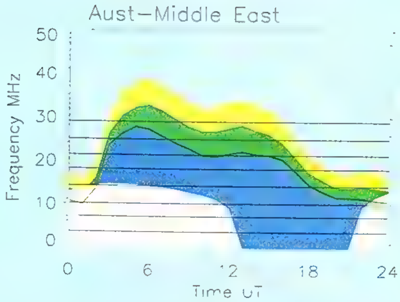


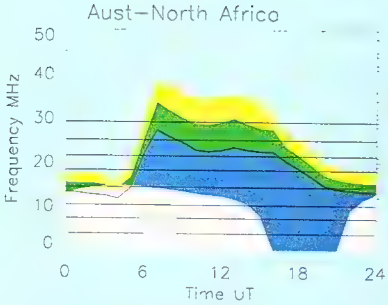


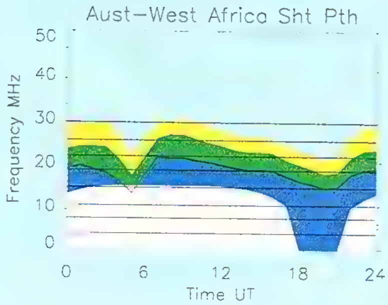


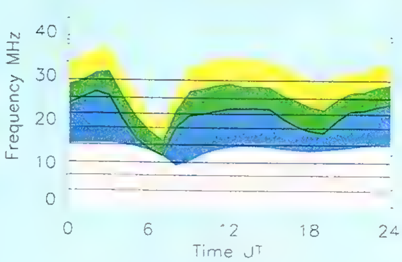


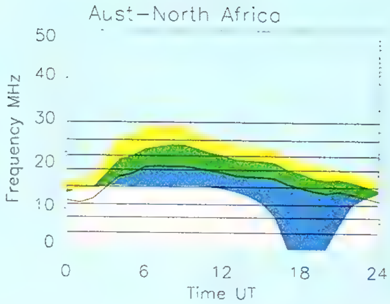












Classifieds . . .

Readers are invited to submit their wanted or sale items for free publication in these pages. You can mail or fax the form on Page 76, which displays the conditions attached to publication, or submit via our automatic web site form at **http://www.radiomag.com** Note that E-mail addresses will be printed with each advert unless you specifically request otherwise. Classified adverts for all areas are in the one group, listed alphabetically. Good hunting!

- **Realistic** hand-held scanner, new, still in box $130. Allan 0419 313 075
- **Realistic** Netset 200-ch table scanner $150. **Realistic** 200-ch hand-held $150. **Realistic** DX100 comms rcvr $120. **Barlow Wadley** XCR-30 Mark-2 31 bands and FM $350. (02) 9365 1992
- **RFI** Yagis, new in plastic bags, 4 co-phased gold with RFI splitter. Model YB16-71 470-490MHz, best for CB UHF 20 dBu, 28 dBi gain. Cost $1150 (show receipt), sell $900. Mick 0438 905 284
- **Satellite** antenna positioner with remote $65. Satellite digital receiver, Nokia $50. Dynalink analogue satellite receiver $150. 10 foot mesh satellite dish with pole $250. James, VK2KHJ (02) 6777 1044
- **Sawtron** 999 UHF $450. **Sawtron** KG107D UHF as new $450. **Sawtron** KG209D with CB UHF, scan, scrambler, CTCSS, SelCall, fast chrgr, very compact $400 as new. **Kyodo** KG108 UHF 99 ch, SelCall EEPROM PC prog $750. **Kyodo** KG109 UHF CB HT, needs batt $220. Steven 0438 021466 or sfradios@dragnet.com.au
- **Shack Clearout: Kenwood** R-600 comms rcvr, exc cond $250. **Yaesu** FT-200 HF xcvr with mtchg pwr supp, Leson mic, all VGC $300. **Yaesu** FL-50 xmtr with mtchg VFO, Leson mic, wkg cond. A real collectors item! $200. **Uniden** Bearcat UBC 9000XLT scanner with mob mntg brkt VGC $300. **Emtron** EP-2000 SWR/pwr cross-needle meter $40. **Hansen** FS-5 SWR & Power meters $20. **Robot** Slow Scan unit good for parts only $40 ono. Inkel PM-836 spkr mon panel $20. Peter, VK4BPK (07) 4630 8001 or vk4bpk@enter.net.au
- **Stolen** Nov 11 from East Melbourne: 1999 Daewoo Nubira PXL-316 with **Yaesu** FT-90R ser num 9J100008. Please call David, VK3EW on 0417 35 8095 or Victorian Police City Patrol Group (03) 9650 7077 or E-mail David: davidew@alphalink.com.au
- **Swan** Astro 102BX xcvr exc cond, $650. John, VK2TCV, 0407 450 748 or jagle@ihug.com.au
- **Swap**: Collins 32S-3 xmtr in exc cond ***for*** Collins 72S-3 rcvr (or later mod) in good to exc cond. Chris, VK3FY 0419 155 139 or vk3fy@hotmail.com
- **Syntrx** service manuals, 6 avail 68p02901d14-B/D uhf 25w $10ea. Noel 0414 644 371 or ax2qgt@bigpond.com
- **TET** 4-el 3-band beam, cost $910. Ken KR650XL rotator, cost $850. Tower, 60ft self-support/tilt, with cables connectors. Will sep. Offers? Peter, VK7PN (03) 6334 4701 or 0419 448 288 or dupen@microtech.com.au
- **Tower/beam** 40ft Delhi with gemquad cubical quad ant. John, VK6BTM (08) 9586 1123 or jmclimo@southwest.com.au
- **Towers** one 6m free-st, one 14m windup, best offers. **Kantronics** KPC-3 Packet TNC with manual $200. **HP** RMS Voltmeter 400H; **HP** 410b VTVM; **Marconi** audio power meter; **Advance** audio gen to 50kHz; **HP** 200CD gen to 600kHz. $50ea + freight. Mike, VK3AJD (03) 9306 9771
- **UHF CB** repeaters, two, complete, ready to use, currently set for ch 3 & 7. Has two 828 talk-throughs, incl two quality diplexers to suit. $5000. Can split in two, $2500ea. Freight/Ins not incl. Omega Radio Club, Inc. Barry (03) 9427 7349 or John (03) 9822 1066
- **Uniden** Bearcat UBC9000 XLT scanner 25-1300MHz, 500 mems, with pwr supp & manual, as new cond $280. Gary, VK3XGL (03) 9741 9942 or garyleeder@optusnet.com.au
- **Uniden** Grant CB xcvr with extras, with **Leson** TW-232 desk mic with vox and **Panther** 4 amp pwr supp, recently serviced by qual tech. $395ono. Andrew (07) 5524 7583
- **Uniden** UBC245XLT Trunk Tracker & cig adaptor, three weeks old. **Realistic** PRO64 400-ch scanner with pwr supp, cig adapt, batt chrgr, sp batts, computer programmer, 6mths old. Peter (03) 5141 1241 or peterlang@hotkey.net.au
- **Various:** Realistic SX-190 11-band comms rcvr, AX-190 comms rcvr, two Realistic SP-190 8Ω spkrs, Nova 14 headph with bal & vol control. Any offers? John (02) 6247 8793 or fax (02) 6247 8816
- **Wanted** IC SC3062 chip for Icom IC-211 *or* buy wrecked IC-211 or IC-701 for spares (both sets use it!). Ian, VK2AVS (02) 6672 2462
- **Wanted** printer and i'face to suit VZ-300 comp. Vic, VK3KVT (03) 9754 4860
- **Wanted** Yaesu FL-6020 or HL-66V 6m linears. David, VK2AIF (02) 6586 4980
- **Wanted**: Azimuth and elev rotators. Phil, VK6APH (08) 9245 2973 or vk6aph@radiomag.com
- **Wanted**: Icom IC-751 HF xcvr, pref with FM board fitted. Roger, VK2TEA (02) 4758 7238 or 0438 58 7238 or rogerco@ozemail.com.au
- **Wanted**: July 1999 issue of *Radio and Communications*. Any reas price paid. Morrison, VK3BCY (03) 5689 1205 or vk3bcy@qsl.net
- **Wanted**: manual for Dovetron MPC-1000 RTTY terminal. All costs paid. Peter, VK3MV (03) 9572 1242 or spy2@labyrinth.net.au
- **Wanted**: old Tektronix CROs; 530, 540, 550 series. The heavier the better! Don't leave them wasting space, send them to a comfortable retirement here. Morris, VK3DOC (03) 9824 8988 or morriso@vifp.monash.edu.au

Printed at: **PMP Print, QLD**
Telephone: (07) 3263 7000
Distributed in Australia and NZ by
Gordon and Gotch

Published by **Radiomag Pty Ltd**
A.C.N. 095 382 488
PO Box 123,
Eagle Heights, Queensland 4271

• Telephone: (07) 5545 0666
• Facsimile: (07) 5545 0622

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ISSN 1445-0607

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Please send silent key estate QSLs to Ken Matchett, VK3TL, Hon Curator of the National QSL Collection. Phone (03) 9728 5350 for details. Save something for the future. Postage refunded.

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- **Wanted:** remote kit for Sawtron 999 (or any info where I might get one). Peter 0419 355 284 or psambell@hq.sjaa.com.au
- **Wanted:** Two rotator clamps to suit Kenpro KR-400, willing to COD. Matt (02) 4990 3887 or caff_matt@optusnet.com.au
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- **Yaesu** YP-150: need info to recalibrate this dummy load/watt meter! All costs gladly paid. Fred, VK2DLW (02) 6655 1564

DIGGING UP THE PAST...

German scientists recently dug 50 metres underground and discovered small pieces of copper. After studying these pieces for a long time, they announced that the ancient Germans 25,000 years ago had a nation-wide telephone network.

Naturally, the British government was not that easily impressed. They ordered their own scientists to dig even deeper. 100 metres down, they found small pieces of glass, and soon announced that the ancient Brits 35,000 years ago already had a nation-wide fibre network.

Irish scientists were outraged. They dug 200 meters underground, but found absolutely nothing. They concluded that the ancient Irish 55,000 years ago had cellular telephones.

All phone numbers are after hours unless otherwise noted

LAST word...

From the pen of John Kolm, VK3YJK

The Complete History of Communications

Okay, SETTLE DOWN.

Thank you. You are very honoured today to have a world-renowned expert on modern communications (me) here to explain to you the complete history of communications technology in just 1000 words. This lecture was first presented in manuscript form to the Smithsonian Institution in March of this year, where it was burned.

As you know, human communication extends back to the dawn of the species, where early proto-humans communicated by hitting each other on the head with lumps of wood. Now that the technology has improved to the point where people use cruise missiles, you may well ask "John, what does this signify for global technology?" And my answer would be "Shut up".

Some years later, Benjamin Franklin discovered electricity by tying a kite to a copper wire and flying it into a thunderstorm cloud. This has set the standard of common sense for technologists ever since. Many promising young science geniuses have since turned themselves into small piles of steaming ash by trying to repeat this experiment, but there's probably a down side, too.

It was not long after that Alexander Graham Bell invented the telephone. What is less well known is that the Customer Service Call Centre was invented by Wayne, his hydrocephalic brother. In honour of Wayne, as you know, Customer Service Call Centres have been staffed by hydrocephalics ever since.

The first words said by Bell over the telephone are supposed to have been "Come here, I want you". And these words are likewise honoured by thousands of phone sex services every day, whose message is essentially identical. History does not record if Bell got relief.

The next discovery was of alternating current, by Eugene Hertz. His name may not have been Eugene, though — I really can't remember. Look it up. Get a life.

Hertz's name is familiar to most because of the frequency of mains current. And as you will know if you have ever stuck parts of your body into a mains outlet — as part of a drunken bet on a Saturday night, perhaps — he's right. It Hertz like hell.

Sorry about that.

One of the lesser-known pioneers of modern communications was a Hungarian Count named Nicola Tesla. He invented the Tesla Coil, which apparently is something to do with communications, and not a contraceptive device. He also had a crazy scheme to short out the ionosphere to the ground with a really long wire (truly) and generate lots of power. This allowed him to combine the insanity of Ben Franklin with the pain of Hertz, and would probably have got him a job as CEO of a power company in these modern times. Then he could have opened a Customer Service Call Centre.

Before we leave the Customer Service Call Centre concept entirely, we must not forget Professor Anton Muzak. Tragically stuck by lightning as a child when standing next to some idiot with a kite, the area which controls musical talent in his brain was fried to the consistency of a burnt rissole. As with so many others who labour hard and pointlessly, he did not let this defeat him.

Thus today it is possible to listen to synthesised Burt Bacharach hits while your own brain is reduced to the same state of catatonia.

I rang the Customer Service Centre at my water company a while ago and was (really) put onto a Muzak version of Celine Dion's theme for the Titanic. Professor Muzak would have been proud. I assume the Bushfire Advisory Service plays *Baby Light My Fire*. And that the Teen Pregnancy Hotline plays Britney Spears' *Oops I Did It Again*.

Of course the modern communications era really began with Guglielmo Marconi's discovery of radio waves. How he actually knew he had created a radio wave is a mystery. I mean, it's not as though you can *see* the things.

Then again, many of us lived through the seventies. With the proper drugs it was possible to see not merely radio waves, but Gautama Buddha his own bad self, riding down iridescent, pulsating radio waves in order to write the Eightfold Path in psychedelic letters of fire on your very own lounge room ceiling. So who's to say what Marconi saw? Coleridge was out of his mind on laudanum when he wrote Kubla Khan, so anything's possible.

In any event, it was almost no time at all before people were building radios, thus advancing Civilisation as we know it and enabling people to have better wars and so on. At this point (I'm interpolating a little here) Anton Muzak went senile, leading directly to the invention of talk-back radio.

Anyway, as all these developments were happening, the military was not asleep. No, in the 18th Century, the military were issued with a quart of rum a day. They were drunk. But they were also paying attention to communications.

Radio communications were invaluable to the early Air Force pilots, enabling them to have one more thing to fiddle with as they crashed to the ground. Most of the crashes were accidents, but at least some of the early pilots must have accidentally got their receivers stuck on talkback radio, and decided that suicide was the quickest solution. Radio communications were also very helpful in preventing many pilots from crashing into the large, almost-invisible towers and masts erected to provide radio communications.

History then went pretty smoothly until the invention of digital communications. In the pre-digital era, communications revolutionised the world, allowing humanity to act much more wisely and maturely on the basis of shared information. For example, the Germans well and truly got the message in 1918. They've hardly bothered us since then.

Digital communications coincided with the invention of the computer. Computers count the way you would, if you had two fingers. Therefore digital communications can be regarded, in lay terms, as one person flipping the bird to another person with alternating hands and at very high speeds. You can see the same thing in any large city at rush hour.

The importance of modern communications, therefore, is that it has allowed us to misunderstand each other on a global scale and at very high speed. This is very significant. If there really are aliens out there, they may marvel at a race that has harnessed the brightest minds of half a dozen generations so that people can participate in talkback radio and watch episodes of *Buffy, Vampire Slayer*.

Of course, sometimes, the old solutions work best. Our local newspaper reported the case of a man who was fed up with receiving abusive E-mails from a neighbour down the street. So our hero dropped by and hit him on the head with a lump of wood.

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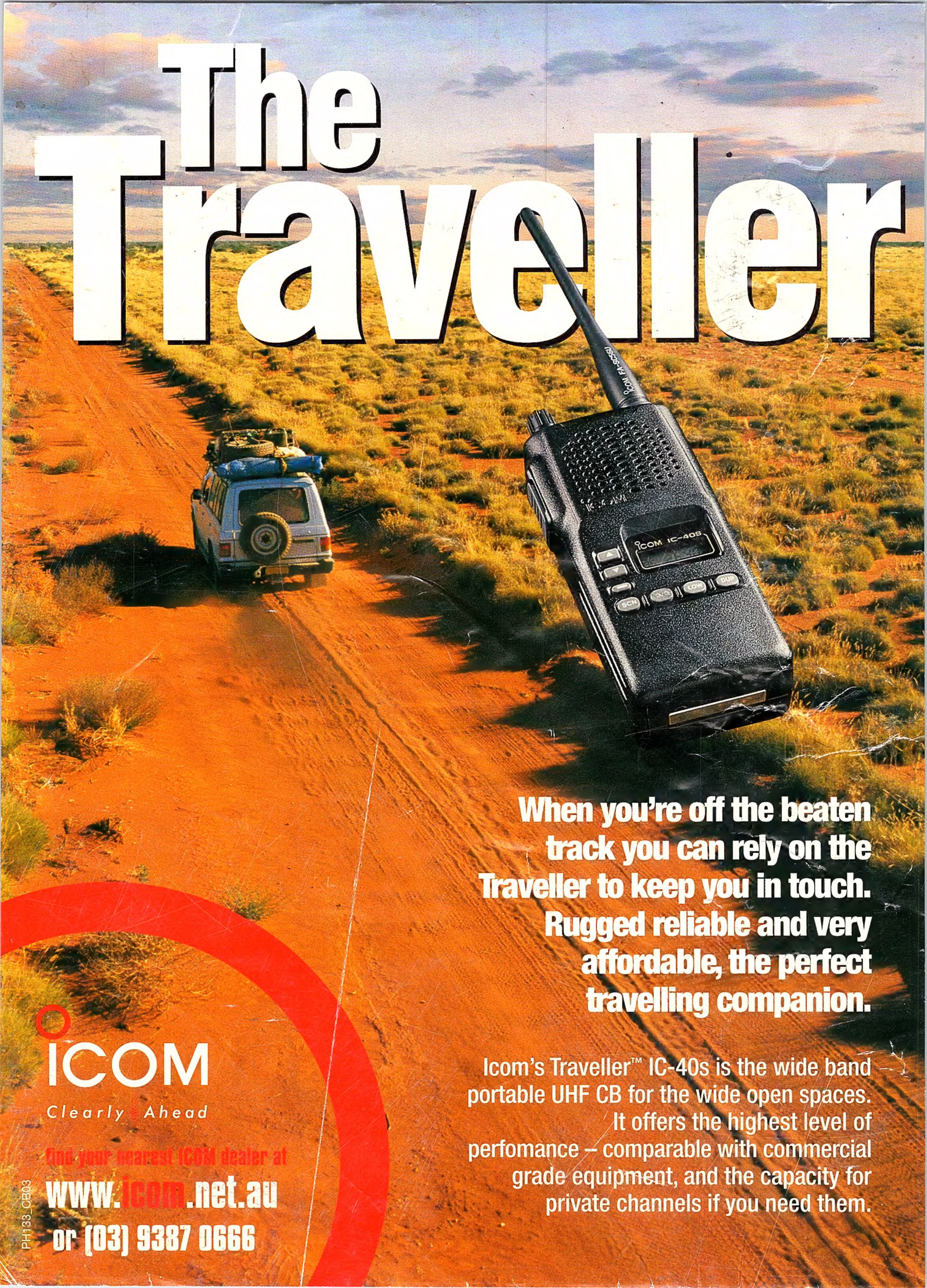

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